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Editorial

To Marta: From the Drawer

■After the Soviet invasion several hundred writers were banished from official Czech literature. Unable to publish, some writers resigned themselves to *writing for the drawer.* Others, such as Ludvik Vaculik, began exchanging their manuscripts, frequently using feuilletons, short literary essays, to communicate. Some wrote regularly and used the feuilleton to comment on events both personal and general. The writings of these forbidden authors eventually gained wide currency. Some found their way abroad and later returned to Czech readers, thanks to émigré publishers.

On July 4, I began to read *A Cup of Coffee with My Interrogator: The Prague Chronicles of Ludvik Vaculik* (London: Readers International, 1987). In his introduction to this collection of Vaculik's writings, Vaclav Havel asks "To what extent has contemporary Czechoslovakia, and contemporary Central Europe, been cut off from the rest of the world? Or, in other words, to what extent are we today still able to understand one another?"

Naively, I thought of the problems central Europeans would have communicating with us but not the other way around, us with them.

The significance of Havel's question did not really hit me until I was reading the first piece by Vaculik, "Free to Use a Typewriter."

Vaculik, speaking to his fellow Czechs, asks "When did you last read anything interesting in the papers? By that I don't mean interesting reports about matters economic or technical, about natural phenomena or political revolutions, but an interesting *idea* on any of these subjects. You can progress along the road of discovery without anything really new being said until such time as someone gets a personal feeling about it and tries to put his thoughts into words."

I am not a Czech, but I understand. I know more than a few academic librarians who would say the same thing about library literature. Let us generalize. The same can be said for much of what we read, for as Vaculik goes on to say, "Ideas provide a language with inspiration, information exhausts it."

There is an obvious irony in the fact that more than 200 titles by forbidden Czech authors have appeared under the name of Padlock Publications. It may also be ironic that for us to understand contemporary central Europeans we must unlock our own thoughts, take them out of the drawer, and put them to the same kind of test that one must imagine forbidden authors or forbidden thoughts face throughout the world.

Vaculik's strength lies in his ability to enlighten not only his fellow Czechs but also others. We can understand one another only with difficulty and only if we are honest. And if we care.

■Marta Dosa is a professor at the Syracuse University School of Information Studies. She received her doctorate from the University of Michigan. Her dissertation, since published, is about Georg Leyh, director of the Tübingen University Library from 1921 to 1947, a few years after the fall of the Third Reich. She is also the godmother of my son.

Marta is deeply interested in international affairs and has delivered scores of addresses throughout the world. She is devoted to linking countries, especially developing coun-

tries, through information and people-sharing. She has an outstanding international reputation. For example, she was involved in efforts by the People's Republic of China to develop a national information policy.

Marta serves as chair of the International Federation for Documentation/Education and Training Committee (FID/ET). This committee promotes cooperation among nations for the development of education for the information professions; it links members of the worldwide information education community interested in sharing ideas and experience.

FID/ET also supports the International Clearinghouse of Information Education and Training. It serves as a source of educational and training materials for information educators, researchers, and policy makers. Course syllabi, reading lists, lecture notes, test problems, training packages, and audiovisual aids are included. Inquiries in all languages are welcome, and programs in the developing regions of the world receive special emphasis.

Last spring I learned of Marta's work with FID/ET. I wanted to help. I read the brochure and other material. Only words, I thought, abstract words.

I realized with a certain sadness that I didn't care.

■However, the words of Vaculik, rather, the *ideas* of Vaculik opened up old memories in me, memories of a young man who joined the U.S. Army in January 1957. This act was taken, at least in part, to offer one small exception to the shallow words of support given by the American people to central European peoples striving in their own ways for more freedom.

Inquiries about the FID/ET International Clearinghouse of Information Education and Training can be sent to Marta Dosa, Professor, School of Information Studies, Syracuse University, Syracuse, NY 13210; (315) 423-4930.

CHARLES MARTELL

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The Scholarly Information Center: An Organizational Model

Diane J. Cimbala

The steady increase in automated functions in libraries and the growing service orientation of computer centers have blurred the distinctions between these two separate academic units. Several authors have suggested that given the similarities between libraries and computing centers, they be combined administratively, though no institution has yet completely merged the two. This article explores the structural and personnel implications of such a union and proposes an organizational model for creating such an information services center.

In a 1985 article in *Public Administration Review,* Harlan Cleveland outlines his view of the nature of information as a commodity: "The size and scope of 'the information society' are now familiar even in the popular literature. We can take it as read that information is the dominant resource in the United States, and coming to be so in other 'advanced' or 'developed' countries."[1]

Cleveland describes the characteristics that distinguish information from other commodities: it is expandable; it is not "resource-hungry" (that is, its production and distribution use little energy and few other resources); it is substitutable, transportable, diffusive, and shareable.[2] He argues that the effects of information on the global economy will differ drastically from those of traditional manufactured goods or natural resources and that the unique characteristics of information will force the world's business and political leaders to reorganize their patterns of influence and control.[3]

On a level that is closer to home, Patricia Battin, formerly vice-president and director of libraries at Columbia University, has used Harlan's model to propose a new "scholarly information center" combining the best of the academic library and the university computing center:

> According to the traditional cliché, the Library is the heart of the University. I think it is time for a new metaphor—and that metaphor is more appropriately DNA. The new process will be a helix—we provide a basic set of services and technical capacities, users interact and experiment with the new technical dimensions and develop new requirements which then influence the evolution of a new shape for the infrastructure. As the genetic code of the University, the character and quality of the Scholarly Information Center will determine the character and quality of the institution.[4]

Battin's ideas have served her well. Columbia University added to her responsibilities the oversight of academic computing, thus making possible the combination she described.[5]

Librarians and computing directors throughout the country, since the beginning of this decade, have been studying the prospect of building links such as those proposed in Battin's scholarly information center. As Cleveland asserts, even popular journals have recognized that

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computer technology has affected libraries greatly and has expanding potential. An editorial in *The Futurist* notes that "libraries that embrace the newer technologies (without neglecting books, of course) should become increasingly valuable to their patrons."[6]

Libraries are becoming increasingly automated and depend more and more heavily on electronic access to information, more than most patrons realize. Staff in many academic libraries work closely with their counterparts at academic computing facilities as they install telecommunications equipment, microcomputers, and in-house networks. However, such a link may not indicate a natural or easy transition from two organizations to one. This article will examine the potential difficulties that might be encountered by academic libraries and computing centers as they move from a position of mutual respect and frequent interaction, but separate organization, to a true union of interests and functions and will propose a model organization that reflects that combination.

For years, perhaps unbeknownst to most scholars and computing specialists, libraries have relied heavily on computers to provide easy access to information. At the bibliographic level, two national networks, the mammoth OCLC and the Research Libraries Group's RLIN, provide access to nearly twenty-four billion machine-readable records that describe the monographic and selected serial holdings of the nation's libraries.[7] From these tapes card, online, and computer-output microform catalogs are created. Through the OCLC and RLIN networks, scholars may confirm bibliographic data and holdings and borrow books from other libraries. The databases are important as both reference and technical tools, and the organizations that provide these services strive to improve and expand them.

Libraries have also made extensive use of the online databases that provide computerized access to periodical indexes as well as electronically published full-text journals. In addition to the telecommunications-based sources, the advent of compact disc technologies has enabled libraries to access, store, preserve, and disseminate enormous quantities of data that would be too costly to purchase and keep in print form. Archival materials, too, can be made available through the new technologies.

Service is a third facet of computing. Librarians speak of bringing their libraries to "full automation," meaning that functions will be electronically integrated from the point that an item is ordered through payment, cataloging, and circulation. Online circulation is already common, and most academic libraries have automated at least portions of their acquisitions and serials functions. OCLC and RLIN are used in-house to catalog materials. Integrated linkages between the two utilities are still being developed but likely to be available within the not-too-distant future.

". . . the library's electronic services largely reflect access to externally generated information, while computing centers are concerned primarily with internally produced data . . ."

A major difference between the library's and the university computing center's use of computing is that, with the exception of functional activities, the library's electronic services largely reflect access to externally generated information, while computing centers are concerned primarily with internally produced data such as student records, intracampus networks, accounting, word processing, and statistical services—all of which comprise the archival records of a university's daily business. In addition, computer centers may provide access to raw data used in research.

Citing *Chemical Abstracts* as a prime example of the complex problems facing librarians and scholars, Battin describes the maze of information that is accessible via computer. *Chemical Abstracts* is available first as a printed index, then as *Chem Abstracts,* an online index searchable via the commercial database services. There are,

according to Battin, three types of index users: those who are satisfied with print access, those who require professional searching assistance from a librarian in order to gain access to the online *Chem Abstracts*, and those specialized scholars who prefer to search *Chem Abstracts* themselves, preferably from a home or office computer terminal.[8] The costs for providing all three levels of access are prohibitive for many institutions, as the cost of paper indexes runs in the thousands of dollars, online access is expensive to subsidize, and providing adequate telecommunications equipment for experienced scholar/searchers can be difficult and costly as well. Similar examples might be chosen from most other disciplines. Battin suggests that the scholarly information center should be able to provide online access to machine-readable indexes such as *Chem Abstracts* in addition to the institution's card catalog, the national bibliographic networks, administrative files such as student records, and other subject-specific databases.[9]

The problem arises when one considers the administrative structure necessary to accomplish such a merger. Setting financial concerns aside, the most logical plan for accommodating such a venture would combine the library and computing center into one unit. Battin asserts that such an organization will have to evolve with technology, that the "Scholarly Information Center does not imply a building and rigid hierarchy of chains of command."[10]

Nevertheless, academic libraries and computing centers are parts of a traditionally hierarchical organization: the university. In addition, the two tend to be similarly structured. While they can and will cooperate to provide information for years to come, it is entirely conceivable that one day they will form one body within the university structure and that no distinction will be made between the librarians and the computer specialists.

Despite the similarities, no institution has yet completely integrated the library with the computing center. Columbia University and California State at Chico have come close, but in both cases these units still maintain separate identities while reporting to a common vice-president.

The potential for combining the units exists, and the logic of such a move may become more apparent as technology unites their services. Eventually, academic administrators will look at the staffs of the library and computing center and see quite a bit of duplication.

Ideally then, a scholarly information center would consist of two groups: public or user services and technical services. Staff in the former would be responsible for teaching patrons how to gain access to information, whether in printed or machine-readable form. They would need to be well acquainted with automated systems so that they could assist patrons in selecting sources best suited to their needs. Currently, reference librarians serve this purpose by directing patrons to appropriate sources, and academic support staff in computer centers perform the same function when suggesting the software packages best suited to patrons' needs. The expertise of the two could be combined into one staff, responsible for teaching computer as well as bibliographic literacy.

The technical services functions would support the public services staff. These members would prepare data for input, much as the staffs of cataloging departments now do with OCLC and RLIN and as programmers and systems specialists do in computer services. Like acquisitions and collection development librarians, they would make decisions regarding appropriate purchases of systems, documents, hardware, software, and other media. They would be responsible for maintaining access to intra- and intercampus networks via telecommunications systems, and they would address the provision of system access to scholars who work at home.

Several problems are inherent in creating such an organization, and several important issues involve personnel. The staffs of existing libraries and computing centers may well resist such a change. Appraising and translating academic credentials and determining salaries are also considerations. At present, only a handful of

academic libraries will employ anyone less than a librarian holding the M.L.S. degree from an American Library Association–accredited institution for a professional position. Many prefer, even require, additional graduate education, such as a subject master's or Ph.D. degree. Conversely, the market for computing specialists has made it difficult for academic institutions to compete for those holding an M.S. in computer science. Consequently, many computing facilities are staffed by people who hold only a bachelor's degree. To complicate the situation, librarianship, as a traditionally female-dominated profession, is still cursed with absurdly low salaries when compared with other professions requiring a master's degree. Market conditions present the opposite circumstances for computer scientists.

The problem of faculty status must also be addressed. Many institutions view their librarians as instructional personnel in line positions, granting them faculty rank, allowing them voting privileges in the faculty senate, and requiring them to apply for promotion and tenure. Computing center employees, usually considered staff, do not enjoy the rights and responsibilities granted to academic librarians. Last but not least will be the image problem: very few computer scientists will wish to be labeled "librarians."

". . . like the hybrid scholarly information center presented by Patricia Battin, a hybrid librarian–computer scientist may be the solution to the personnel dilemmas created by such an organization."

Indeed, like the hybrid scholarly information center presented by Patricia Battin, a hybrid librarian–computer scientist may be the solution to the personnel dilemmas created by such an organization. Some library schools are already anticipating that need by offering degrees in information science that have a more technical focus than traditional library education programs. If they are to educate individuals to work in an integrated information center, library schools must keep abreast of technological trends and still provide their students with a strong service orientation and a bibliographic base.

The goals, focus, and orientation of an information center will also present problems for administrators. Traditionally, libraries have been service-oriented and have focused on the research and curricular needs of the students and faculty. Computing centers have not needed such an altruistic outlook, as their initial purpose was subject-specific: they served computer science majors much as the language lab serves students of foreign languages. As more and more students and faculty become aware of the opportunities computing offers, and as technology leads more scholars into the use of computers, computing centers will find their focus shifting. Raymond K. Neff, assistant vice-chancellor at the University of California–Berkeley, believes that a distinction will have to be made between public and private computing: "public computing [involves] writing programs meant to be used by people other than programmers, and to be maintained over time. . . . Private computing involves writing programs either for oneself or for a limited audience."[12] Ability level will also be a concern of the information center staff as they deal with users who are novice, advanced, or highly sophisticated.

It will be years before an institution as tradition-bound as the university will be willing to address full integration of computing services and libraries/media centers into one body—as Patricia Battin noted, the process may be evolutionary. Still, as technological advances and demands bring the functions and services of the two organizations closer together, and as financial constraints prohibit duplication of effort, the work of academic librarians and computer services specialists will gradually be transformed into one discipline. Librarians who retool to prepare for such change will serve their patrons better now and will find themselves in a more flexible position when integration occurs. Librarians and computer specialists ought

to begin now to recognize their common purpose and to form relationships that are allied, not adversarial. At the current rate of technological change, the day of the scholarly information center is not far off. Librarians, computer services administrators, and upper-level administrators of colleges and universities must anticipate this change and begin long-range planning to accommodate it.

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A Quarter Century of *Advanced Data Processing in the University Library*

Jim Segesta and Rod Hersberger

Advanced Data Processing in the University Library, *by Louis Schultheiss, Don Culbertson, and Edward Heiliger, the first book about computers in libraries, was published a quarter century ago. It tried to show how computers might be used in libraries and how libraries might change from conventional to computerized operations. It presented its view of library computerization more fully and systematically than anything published previously. This retrospective review attempts to consider how accurate that view was.*

A quarter century ago, in 1962, the rent for an IBM 1401 was $105 per hour or $5,500 per month, and all computers were mainframes that came with programmers, not software. The word *software* was so novel that its use required an explanation. Digital Equipment Corporation was still a year or two away from producing the first minicomputer, the PDP 8. Innovative libraries were acquiring Xerox machines; patrons were learning to love the convenience of copying whole pages mechanically, and the model 914 showed promise as a way to make catalog cards. In that year, *Advanced Data Processing in the University Library*, by Louis A. Schultheiss, Don S. Culbertson, and Edward M. Heiliger, was published by Scarecrow Press. It was the first book specifically devoted to the use of computers in libraries. This paper is a retrospective review of that book, which will be referred to here as *ADP*. It seems appropriate after a quarter century to take another look at the first book about computers in libraries. Rereading *ADP* leads one to consider to what extent librarians' initial expectations for the computer have been met and, where the expectations differed from the outcomes, to speculate about the reasons.

Since *ADP* was published, we have never lacked books about computers in libraries. *ADP* was like the bugle call that signals a cavalry charge. The next year, 1963, saw the publication of the King report, *Automation and the Library of Congress*. The first of the long series of Clinics on Library Applications of Data Processing was held at the University of Illinois in Urbana. Also in 1963 the Airlie Foundation Conference on Libraries and Automation was held, the proceedings of which were published in 1964. In that year Medlars became operational, ERIC was founded, and the first volume of the American Society for Information Science's *Proceedings of the Annual Meeting* was published. The literature of the library's computer age has poured forth ever since.

Library automation (as opposed to computerization) was no novelty in 1962. Punched card and paper tape technology had been pressed to fairly high states of development in a few libraries. More than a decade earlier, in 1951, Kings County Public Library in Washington had produced a book catalog using punched card

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equipment. By 1955 the Los Angeles County Public Library had published a book catalog listing 161,000 titles in twenty-four volumes, and by 1960 there were more than fifteen library book catalogs produced by punched card equipment.[1] At the University of Missouri punched cards were used to prepare orders, and catalog cards were produced on Friden Flexowriters, which were electric typewriters driven by a punched paper tape. If a typist at a Flexowriter typed one main entry card complete with tracings, the machine could then produce an entire set of properly headed cards.[2]

In a related area, information retrieval systems using computers had been under development for almost a decade. As early as 1954 in, oddly, the Mojave Desert, one of the earliest electronic IBM computers had been harnessed to a Uniterm file for the world's first bibliographic search by computer.[3] This was the line of development that led over the years to the computerized databases and to Dialog, BRS, and others. Even in 1962 the computerization of information retrieval was understood to be related to, but separate from, the computerization of libraries.

"*ADP* was the first systematic, comprehensive, published description of how computers might be used in libraries."

By 1962 there were also published reports about the odd project involving the use of a computer to facilitate some familiar library chore. Edward Mack McCormick's "Bibliography on Mechanized Library Procedures," compiled in April 1963, listed 155 items published from 1934 to 1963, 57 percent of them from the 1960s. Most were about mechanization rather than computerization, but some described computer applications.[4]

But *ADP* was different: *ADP* was the first systematic, comprehensive, published description of how computers might be used in libraries. To say that it was welcomed understates matters. *ADP* was reviewed in at least a dozen library journals. All the reviews that were more than simple descriptive notices were favorable, some strongly so. Librarians had been waiting for such a book; statements such as "it should be require reading for all librarians"; "the first major contribution devoted primarily to the development of the mechanization of library operations"; "I would recommend this book to all college and university librarians"; and "will stand as a landmark" appeared in almost every review. One might argue, however, that the book was reviewed favorably but not well. The reviewers generally failed to tackle the key concepts of *ADP*. The reviews lacked expertise; in 1962 there were no experts.

There is other evidence that the book was well regarded. Paul Wasserman wrote that when he began his study of the attitudes of librarians toward automation in 1963, "a number of individuals . . . recommended [*ADP*]. Indeed, this volume was, and is, a most valuable summary and introduction, a mélange of background information, factual details, operating definitions, graphic illustration, and library philosophy. It served to set the problems in focus and to separate what appeared to be possible from the unattainable."[5] At the Airlie Conference in 1963 Ralph Ellsworth asked Robert Patrick, a systems analyst from the Rand Corporation, whether he had found any statements describing what librarians do that had the detail and the point of view needed for systems analysis. Patrick replied that he had found only two useful documents, one of which was *ADP*.

The authors received the usual honors and attention that go with successful books. Heiliger sat on the planning committee for the Airlie house conference. Schulthiess presented a paper at the first Clinic on Library Applications of Data Processing. Heiliger and Culbertson moved on to better jobs: Heiliger became the founding director of the new Florida Atlantic University Library; Culbertson went to Colorado State and later became the first executive director of ALA's Li-

brary Automation Division.

Clearly, the book looked good to librarians in the early sixties. Events moved so fast, however, that by the end of the decade few bibliographies on library automation included *ADP*. It was influential, but only briefly; a flood of writings describing more sophisticated systems and more advanced technology quickly replaced it. Too, the accumulating experience of libraries with computers revealed some problems with the book's analysis of the computer's role in libraries, and at Florida Atlantic University what was understood to be an attempt to implement the system proposed in *ADP* failed, with no good results for the book's reputation.

ADP came into being in this way. Edward Heiliger, the director of the University of Illinois' Chicago Circle (UICC) campus library, had an early interest in the application of computers to library work. In 1959 he invited Cloyd Dake Gull of General Electric to speak to some Chicago librarians about computers in libraries, and that meeting led to a project to create a flowchart of the UICC library's paperwork systems, which led in turn to an application in October 1960 to the Council on Library Resources (CLR) for a grant "to investigate the possibilities of a total system of mechanization of routines in a university library."[6] CLR promptly approved a $50,000 grant: *ADP* is the record of the project funded by that grant.

The UICC librarians had more reason than most to investigate the computer. New libraries, now rare, were common then. In 1962, the year *ADP* was published, librarians in California, for example, were beginning to assemble opening-day collections for no less than three new University of California (UC) campuses and two California State University campuses. While the UICC campus was not new, it had a small library that would grow very fast. Any librarian in that situation at that particular time was duty-bound to consider whether the computer offered superior alternatives to the traditional ways of building libraries. The potential gain was huge: if the computer could be used from the beginning, the mammoth files of a large library could be created in a machine-readable form. There would never be a need, in that library, to convert paper records to electronic forms. Naturally, librarians at such new academic libraries as UICC, UC San Diego, and Florida Atlantic were among the pioneers in applying the computer to the work of the library.

The book is not easy to describe; as noted above, Wasserman, who admired *ADP*, called it a "mélange." *ADP* is both a plan and a description of the process that produced the plan. The product was a paper, not an operating system. The book is very clear about that. (Later in the sixties, publications that described plans as if operational appeared frequently enough to draw complaints.[7] No charge of that sort could be leveled against *ADP*.) Further, *ADP* was a team effort involving the authors, other UICC librarians, and the consultants from General Electric, Gull, and G. P. Williams. It is hard to tell who contributed what. The consultants were responsible for much of the content of the key chapter that described the proposed systems.

The planning process was better than the plan. The book could still be consulted with profit as a guide to planning an innovation in a library. UICC librarians began with first principles: the first chapter reviewed the history of library automation to that time, and the second chapter was entitled "A Machine Age Library Philosophy."

The philosophy could almost serve today. Very briefly, the librarians wanted a new system that would provide all the information then available through conventional card catalogs and order, serial, and circulation files. In addition they wanted current awareness lists and subject lists compiled and printed by the computer. They understood that computers would be able to combine and manipulate subject headings and other parameters in ways that were and would always be impossible with conventional files.

On the other hand, they did not seek subject indexing in more depth than was then provided by the Library of Congress and the standard indexing services. They also waived the mechanical retrieval of in-

formation and understood that, in the long run, Library of Congress cataloging in machine-readable form would set standards for format. The final point in the UICC philosophy was that centralized collections would serve campuses better than networks of departmental libraries. Although not mentioned in the statement of philosophy, costs were very much on their minds; the authors hoped that the computer could reduce or contain the costs of the technical services, and that was cited repeatedly as a justification for library computerization. Finally, throughout the book the authors described their method as a "total systems approach." Allowing for the differences between batch processing and online computing, "total systems" means approximately the same as integrated systems.

Another thing well planned was staff involvement—the authors seemed very sensitive to the concerns of their coworkers. Regular meetings with the professional staff were held before and throughout the project. One appendix includes reprinted essays that the UICC librarians had written on their expectations for the project. At one stage the librarians even debated a list of questions about basic library procedures: "Resolved, we should do away with all fines"; "Resolved, each faculty department needs a catalog," etc. The staff appears to have been enthusiastic about the project. In their preface to *ADP* the consultants, Gull and Williams, presumably encouraged by their experience at UICC, ventured to predict, "the stereotype of librarians as conservatives opposed to technological change will vanish whenever librarians are faced with real opportunities to introduce sound technological improvements."[8]

A chapter "Present Methods" analyzed unit costs for acquisitions, serials, circulation, and cataloging for the year 1959–60. The work load was small—2,549 titles cataloged, for instance—and the unit costs were high: the authors estimated $13.51 to acquire, catalog, and process one book at UICC.[9] Reviewers were struck by those figures; from England, C. A. Crossley grumped that his "American colleagues have become absorbed in routine to such an extent that they fail to see that machine and computer techniques are not the only way out of the wood—they could cut down some trees."[10]

Reviewers were also impressed, but more happily, by the flowcharting—*ADP* contained almost 100 pages of flowcharts. The technique was not widely known among librarians then, but the reviewers could see how useful it would be in describing the operations of technical services. As noted above, Schultheiss delivered a paper on the subject the next year at the first Clinic on Library Applications of Data Processing at Urbana.[11]

Chapter 7, "Proposed Systems," is the heart of the book. Taken from the consultants' report, it describes and estimates costs for an integrated system whose main files would be in book form. The processing information list, to be printed weekly, would record the books on order and in cataloging. When books were ready for use, their records would be transferred from the information list to the monthly edition (supplement) of the catalog. This edition would be revised monthly for a year or more; then its records would all go into the total holdings edition of the catalog. There would thus be only two alphabets to search in order to determine the library's holdings of cataloged books and a third to search for the books on order and in process. The costs for producing those two lists were estimated at $33,000 per year at a work load of 2,000 titles per month, and that excluded the cost of LC copy and keypunching. Arranging the individual records was a problem. As the authors noted, "It is easy enough to say that a computer will put an unordered list in order by author or by title. However, the computer program for doing this does not exist."[12] Sorting codes were a possible solution. The difficulty was certainly not insurmountable, but four out of the authors' list of eight tasks to be accomplished before an operating library could be fully automated involved filing and alphabetization.[13]

At the time, many false trails beckoned library innovators. In the late fifties and early sixties various mechanical devices had been mated with microfilm databases

to provide a kind of automated retrieval of information. Systems like the Rapid Selector and Walnut received a good deal of attention; the authors of *ADP* considered but quite properly dismissed them. Facsimile transmission was more exciting. They visualized the transmission, over coaxial cable or by microwave, of pages from books and journals in Urbana. There is no mention, though, of transmissions between computers and remote terminals linked by telephone lines. Within a decade OCLC had made the MARC records accessible to midwestern libraries using that technology, and the consequences were revolutionary; not surprisingly, there is no glimmer of that development in *ADP*.

"The authors tried to show how computers might be employed in libraries and how libraries might change from conventional to computerized operations."

The authors tried to show how computers might be employed in libraries and how libraries might change from conventional to computerized operations. They presented their view more fully and systematically than anyone who had published previously. How accurate was that view?

One assumption was that a small, new library was a good place to start computerizing. This assumption depended on another: that the research and development necessary to produce better or cheaper alternatives to conventional methods were not beyond the reach of such a library, given reasonable funding. Tied up in the same bundle of assumptions was the notion that computerization was something that each library would have to develop for itself. (That had been the case with the punched card systems of precomputer library automation.)

Later in the sixties hundreds of libraries, many of them small or new, did make moves toward computerization. In 1970 the Lark Association surveyed 3,000 libraries about their automation projects; 347 reported projects either planned or operating.[14] Many of these projects were small, single-purpose applications; few, if any, were as comprehensive as the system proposed in *ADP*; the more ambitious were trouble-prone. The library landscape of the late sixties was pocked with crashed and ruinous automation projects. Libraries that should never have ventured so far into automation at that stage of development wasted some sizable sums. Pioneers are more likely than other people to leave either their names on maps or their scalps on teepees, and never was that truer for library pioneers than in the automation efforts of the sixties.

The CLR's *Fourteenth Annual Report*, in 1970, stated the lesson plainly: "It has become increasingly evident that the average library will never be able to 'go it alone' in some aspects of the new technology—automation for example. The level of investment required to reap the benefits of the emerging national machine-readable databases exemplified by MARC is far beyond the individual budgeting capacity of any but the very largest libraries. Agreement is growing that the only possible solution to the dilemma—especially for the medium-sized and small libraries—is for them to band together in local, state or regional consortia and thus pool their assets and efforts."[15] One might wonder if the book, too optimistic, had encouraged librarians to enter the water when it would have been better to warn them away.

Other, much grander appraisals of the cost of automation appeared shortly. The very next year, 1963, the King report estimated $50 to $70 million for the automation of the Library of Congress.[16] By the end of the decade a proposal for five national computer projects spoke of $400–$500 million over a four-year period, over and above all present funding.[17]

Not only were the research and development to prove much costlier than anyone dreamed in 1962, but when the money came it flowed through doubtless well-worn channels to the largest universities, just like the funding for research in other fields. Writing in 1973, a decade after

ADP, Herman Fussler reported that Columbia University had spent $1,105,000 on automation from 1966 to 1970; that Stanford had grants for library automation of $1.2 million from the Office of Education, $1.13 million from NSF, and $650,000 from CLR and NEH; and that the University of Chicago had received almost $2 million in grants for library automation in the late sixties and early seventies.[18] As is to be expected with research and development, many very expensive projects were failures. Among the more successful results of this research investment are NOTIS from Northwestern, VTLS from Virginia Tech, and Stanford's BALLOTS, a forerunner of RLG's RLIN. Although many small and new libraries experimented with computerization, the important developments took place elsewhere.

ADP also cried the second coming of the book catalog—book catalogs printed by computing equipment and supplemented regularly were to replace card catalogs. That, too, was, on the whole, an error. In their rematch the card catalog again bested its rival, but the book catalog did win a few rounds. Computer-printed book catalogs have superseded card catalogs in many county libraries and in other locations where multiple copies of a book or COM catalog could replace a number of separate card catalogs. The book catalog's little cousin, the serials holdings list produced by computer, is a library staple, and the online catalog may well become the premier development of library computerization.

Interestingly, the King report, published a year after *ADP* in 1963, contains an appendix dated August 1962, which describes and proposes an online catalog. This appendix, "A Cost Analysis of an Automated System for the Library of Congress," by Herbert T. Spiro and Allan D. Kotin of the Planning Research Corporation of Los Angeles, was actually the largest part of the King report. The concept of Spiro and Kotin was quite like that in UC's Melvyl and in the OLPACs, which in 1987 seem certain to become the catalogs of the future. The two potential products of the cataloger's computer, that is, the book catalog and the online catalog, were thus opposed at the very beginning of library automation. Why did the Library of Congress consultants recommend an online catalog while those at the University of Illinois recommended a book catalog? Money was undoubtedly a factor, and so was time. The King report mentioned $50 million (in 1963 dollars) as a reasonable price for automating the Library of Congress, and spoke of the research and development necessary to perfect the terminals that would be used to search the computerized catalog. That money and effort were out of the question for any other library. In Chicago the UICC librarians faced the prospect of an imminent acceleration in growth. If the computer were to help, it would not be through the development of a computerized catalog. The large sums of money and the lengthy period of research and development required were too costly. The UICC librarians and their consultants looked instead at batch processing and fast printing and made their choice accordingly.

"The total systems approach is perhaps the most enduring of all the concepts in *ADP*."

The total systems approach is perhaps the most enduring of all the concepts in *ADP*; the concept was and is appealing.[19] A record created at the time a book was selected for acquisition would roll through the technical services like a growing snowball, acquiring buying information first, cataloging information later, and circulation records ultimately. Creating the record would be like assembling a machine moving along an assembly line, parts being added at each stop. In *ADP*'s plan the record would first appear in the processing information list, a printed list of books on order and in process. The list would be revised weekly, adding new records and adding new information to existing records. When the cataloging information had been added, the record would be transferred to the next issue of the monthly edition (the cumulating supple-

ment) of the printed book catalog. Later the record would appear in the total holdings edition of the book catalog. The daily circulation list would be a brief listing of all books not on the shelf; it would be produced from punched book cards removed when the books were borrowed.

Total systems have evolved into integrated systems, and those are coming slowly—a quarter century after *ADP*, libraries are only on the threshold of integrated systems. The systems we seem likely to implement in the next few years are conceptually much like that proposed in *ADP*, except that today's systems provide or allow for interfaces with the book trade, the Library of Congress, and the interlibrary loan networks. Technically the difference is that the modern systems are online. Just as in *ADP*'s plan, technical processing and circulation are included in the integrated systems, while the reference department is a user of both the library's integrated system and the bibliographic services supplied by vendors.

The one criticism that might be made of *ADP*'s version of the total systems approach is that it supposed libraries to be much more independent than they really are. In actuality the main departments of a library, except circulation, are themselves parts of larger systems outside the library. Acquisition departments are bound up in the book trade; catalog departments are tied to the sources of their cataloging data, principally the Library of Congress; and reference departments depend on their "toolmakers," the producers of the reference books and bibliographies, printed or machine-readable. The big payoffs in library computerization so far (again excepting circulation) have come from systems that have computerized the links between the cataloging and reference departments and the suppliers of the information in which they deal. The computer lets catalogers and reference librarians tap the collections of data that they use in their work more effectively. The computer could and should do the same for acquisitions librarians, but that particular development has sadly lagged.[20]

Computerization has surely dramatized and highlighted these connections between the departments of the library and the outside world with which the departments interface, but the links should have been visible enough in 1962. Why did *ADP* tend to overlook or at least minimize them? Why did the reviewers see no problems in the absence of connections between the library's computer and the suppliers of the library's data? One reason, no doubt, was the precedent of precomputer automation. The punched tape and punched card systems of the time were all developed individually, each library working on its own. Too, the long-distance transmission of data that allows computers to be consulted from great distances was still in an experimental stage. Another possible contributing factor is that special libraries were a misleading model. In the *Proceedings* of the first Clinic on Library Applications of Data Processing in 1963, Burton Adkinson praised the total systems approach to library automation:

> Thus machine records produced in one operation, acquisitions for example, can be used in others such as cataloging, circulation control, announcements, selective dissemination, or information retrieval. Examples of activities using this approach are National Reactor Testing Station, Lockheed Missiles, Douglas Aircraft, and Sandia Corporation. Certainly this *systems* or *total systems* approach is good.[21]

It is significant that his examples of successful applications for the total systems approach were all special libraries. Several factors tended to propel special libraries into computerization earlier than academic or public libraries, so that anyone looking for examples or models of computer applications in libraries in the early sixties would need to look at special libraries. But it is characteristic of special libraries that they must develop their own sources for acquisitions, their own cataloging, and their own homemade files and indexes. Special libraries depend less on the book trade, the Library of Congress, and the publishers of reference books and bibliographies than do academic or public libraries. To whatever extent special libraries were the models for the total systems approach espoused in *ADP*, a correction should have been made to take into

account the differences between them and academic libraries.

The authors of *ADP* recognized and avoided certain dead ends that looked promising to some at that time. They understood that computerized information retrieval would be developed outside the library.[22] At the time there were a number of new products based on hybrid technologies mixing microforms and computers or punched cards; the authors realized that those were not in the mainstream of library development. They also saw that commercial processing, then drawing considerable attention for several reasons, was not to be significant in the future of academic and public libraries; they understood, too, that expedients like the keyword indexing of titles would not replace subject cataloging and that "semiautomated" transitions, approaches to computerization via punched card technology, were not the right path to follow.[23]

ADP was perhaps the earliest published attempt to foresee, comprehensively and in detail, the changes that computers would bring to libraries. Its view, because of the authors' situation, was deliberately short-range: its message was "Let's start—now!" Many librarians of the time welcomed this message and took it to heart. The book impressed its readers, who were the library leaders of that time. Some of its ideas stood the test of time rather well, others did not. No one should be surprised that in many ways the computerization of libraries developed differently than projected in *ADP*. The power of the minicomputer and the pervasiveness of the microcomputer today, for instance, were unimaginable in 1962. It is interesting, after a quarter century, to try to account for the divergences and to identify the circumstances then operable that led librarians to expect developments that never materialized and to minimize circumstances that were to become very important. That is what this paper has attempted. To keep a fair perspective in judging a book written twenty-five years ago at the very inception of a new technology, it is necessary only to turn in the other direction and attempt to imagine how matters will stand a quarter century hence.

"Its message was 'Let's start—now!' Many librarians of the time welcomed this message and took it to heart."

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19. Charles M. Goldstein, in "Integrated Library Systems," *Bulletin of the Medical Library Association* 71, no.3:308–11, credits Dr. Fussler and the University of Chicago Library, ca. 1965, as the principal progenitors of integrated library systems. While *ADP* used the phrase "total systems," the concepts seem similar.
20. The Library of Congress, monolithic and governmental, moved with what now seems admirable celerity in the sixties to produce MARC. OCLC and the other intermedaries immediately developed the necessary links with the consumer libraries. The result has been a revolution in cataloging procedures. The publishers of indexes each independently developed machine-readable versions of their bibliographies, which BRS, Dialog, and SDC have exploited for the common good. Such systems have been operational for ten or fifteen years. The book trade, on the other hand, entrepreneurial and multifarious, has never collaborated successfully in automation. After a quarter century of automation it should be possible to identify any recent book at a terminal, receive a display of the latest price and availability information, add local ordering information, and direct the resultant request to wholesaler *A* with instructions to the computer that if that firm cannot supply the book within three days, it should transmit the order to wholesaler *B* and thence, if necessary, to the publisher. Of course, it is impossible to do this now, even though the same operation has been routine for years in interlibrary loan. Could anyone, twenty-five years ago, have predicted success for automation in cataloging and bibliography, failure in acquisitions?

    Of course, both the Library of Congress and the publishers of the bibliographies had enormous databases that had to be keyboarded and printed before the computer came along. The transition to machine-readable records was easier because the computer could help with the printing.
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What Professional Librarians Expect from Administrators: One Librarian's View

Cheryl A. Price

There are thirteen qualities or job-related factors that librarians should expect to find in a position. These qualities must be provided by administrators for the best possible employee-employer relationship. Although the qualities may seem to be idealistic, they are milestones that librarians should pursue. The qualities are stability, responsibility, job description, meaning in the position, leadership, flexibility, support by administration, clear administrative lines, prestige, professional salary, support services, growth opportunities, and a healthful and comfortable environment.

There are a number of job-related factors expected by librarians in a position. The factors may seem to be the descriptors of what an ideal administrator should provide his or her subordinate. However, it is not only important that librarians respond to the requirements of positions but that administrators recognize their responsibilities to their subordinates, which necessitate the provision of certain elements or job-related factors for a positive employee-employer relationship. For the purposes of this article, *administrator* is defined as an individual who directs or manages a division of a library. In the academic sphere this will include directors, associate directors, and assistant directors.

One of the first requirements of an able administrator is the provision of a stable environment for the employee under his or her jurisdiction. Most professionals do not expect the administration to shelter them from all unpleasantness; however, they do expect an environment where role ambiguity and work-related stress are kept to manageable proportions. Betsy Ann Stead and Richard W. Scannel summarized studies on role ambiguity, role conflict, and role clarity and noted that these factors were significantly related to job satisfaction.[1] It is the obligation of the administrator to clarify the role a subordinate is expected to play not just by a job description but by actions and communications as well. There have been many instances in which a fine job description was utterly destroyed by the inconsistent administrator. This leaves the professional librarian wondering where he or she stands. Some administrators tend to ignore employees' job satisfaction because it is not an easily quantifiable dimension of employment.[2] (The concept of management by objectives draws on the Maslow and Herzberg theories of human behavior. Herzberg identified motivation as being dependent upon a challenging job with an opportunity for achievement, recognition, responsibility, and growth. However, there are other theories regarding motivation and job satisfaction that may be more pertinent than Herzberg's theory.) Yet the wise administrator realizes that when people enjoy their roles in an organization, productivity increases.

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Secondly, an administrator has the obligation to the staff and to him- or herself to match qualified people with appropriate positions. Alan L. Frohman has stated that a professional's primary motivator is his or her work.[3] If this is the case, then if a professional's skills are matched by his or her interests, this will give added meaning to the work and will enhance the quality of the work. The person will feel good about coming in each day, where work will not be drudgery but will be satisfying. If a professional has interests in areas where he or she does not have skills, it may behoove the administrator to provide an opportunity for that growth, which is the third requirement of an able administrator.

Frohman points out that although job descriptions, performance measurement schemes, and the reward system are useful for heavily technical problem-solving and management decision-making tasks, it is equally important to develop inspiration, risk-taking, commitment, helpfulness, or curiosity.[4] He notes that these so-called peripheral fields are areas where energy for innovative breakthroughs and solutions emerge.[5] A professional librarian should expect to be encouraged rather than held back in these areas. What Frohmaan is alluding to as important for creative development is an environment that encourages trust in one's colleagues and superiors.

If a librarian is to obtain stability, meaning, responsibility, and growth from a position, it is also incumbent that the administrator provide a purpose—goals or objectives—for the library and its personnel. Each librarian needs to know where he or she fits in the objectives of the administration. Although job descriptions are a mandatory requirement for professionals, there should be flexibility within those job descriptions, which exist for the protection of both librarian and administrator. They are there to provide a sense of purpose and to place the librarian in the full spectrum of the library setting. The job description should be reviewed annually and be changed if necessary by mutual consent of administrators and librarians.

The administrator is obligated to provide the librarian with clear administrative lines so that there is no question regarding who has responsibility for what. Although management styles will vary according to the situation, consistency of an administrator's actions and approaches is desirable for stability. Maurice P. Marchant has indicated that "service is better in libraries that involve the staff in their management than in libraries run by authoritarian methods. Staff client relations and reference service are strongly affected, and the quality of other services and collection development are also modified by management style."[6] Marchant also states that there is evidence that improved accuracy of upward communication from staff provides management with better information with which to act and plan.[7]

"Fear is the worst element that can be unleashed in an organization."

Fear is the worst element that can be unleashed in an organization. It can cause job dissatisfaction and bring the achievements of an organization to a standstill. An administrator must inspire trust. As Marchant observes, "the staff's judgment of the confidence and trust their leaders have in them is the most important aspect of participative management."[8] Although there are many styles of management, this author believes that one of the most effective is participative management. Still, this style may only be used up to a point, for there are times when a group cannot make a decision and an administrator must. For stability's sake and for the quality of leadership that most librarians wish to see in their administrators, the director must clearly show where participative management leaves off and administrative leadership begins. In the course of providing leadership, an administrator should not penalize a librarian who may disagree with him or her.

Louis Kaplan notes that a study by Frank A. Heller identified several organizational factors that influence decision sharing.

1. If the decision is perceived to be of great importance to the organization, the superior is likely to use a one-sided style.
2. If the decision is perceived to be important to the subordinate, the senior will likely use a less autocratic style.
3. If the decision is believed to be of greater significance to the senior than to the subordinate a one-sided decision is likely to be made.
4. The greater the senior's "span" of control the more likely that a time-saving style will be employed that is autocratic or delegative.[9]

These factors presuppose that in many instances the decision will have little or no affect on the subordinate; however, in a library setting, the decisions made usually affect those working within the structure. The question is usually to what degree decisions will affect professional librarians. Even though an administrator may feel that no input is necessary from subordinates in a given situation, it is still advisable to seek input. This will encourage communication and have a positive effect on employee-employer relationships.

Personnel factors, of course, do shape the making of decisions. Kaplan notes that American managers have less confidence in the skills of subordinates than do English managers.[10] If a director believes subordinates lack certain skills, it is natural for that director to prefer an authoritarian style. Unfortunately this attitude does not allow for the development of skills that may exist or new ideas that would strengthen a library organization in the long run. The benefits of autocracy are short term and dependent on the skill of the administrator alone. The danger exists that once an autocratic style is in place there is little reason for a subordinate to mention problems that may result from decisions. Peter F. Drucker states that in organizational structures where dissent is permitted and even encouraged groups are better able to adapt to changing needs and conditions.[11] Kenneth Plate and Elizabeth Stone, in their assessment of the dangers of autocratic administration, classify it with low salaries and wretched working conditions as producing employee dissatisfaction.[12]

The administrator may not be aware that a failure to delegate can sometimes be interpreted by the subordinate as both lack of trust and support. One of the reasons cited for librarian burnout is lack of supervisory support.[13] Others include incompetent administration, work overload, and verbal abuse.[14] This situation leads to a loss of self-esteem and consequently a feeling that there is no prestige in the assigned work. There are several types of prestige in librarianship, e.g., prestige built on library collections and on a dynamic, innovative, and cooperative faculty. The latter can lead to achievements and breakthroughs within the profession. The former is an asset to research but if not followed by the second quality the danger exists that prestige may be limited to collections and may not include personnel. Personnel involvement helps build satisfaction and personal prestige.[15]

Another element of personnel involvement is the Japanese approach to management. The Japanese do not focus on giving an answer but rather on defining a question.[16] This approach assures involvement, hence, adding to prestige. After defining the question, the analysis of the problem and possible solutions to it are natural extensions. Plate and Stone also point out that achievement and recognition (prestige) appear to be most important in job satisfaction.[17]

The next element that a librarian expects is a salary that reflects the professional nature of the employment. The field is dominated by women: in 1979 librarians numbered 188,000, with 80.9 percent being women.[18] Bettina Berch refers to the low-pay characteristic of female-dominated professions as a pink-collar ghetto.[19] In an effort to deal with this situation librarians in some areas are turning to the doctrine of comparable worth. Under this doctrine, discrimination exists when workers of one sex, race, or ethnicity are paid less than workers in a totally different category although their comparable worth is the same.[20] Theoretically, this doctrine can be applied to the entire library profession and not just to instances involving low pay for female employees. In dealing with the predisposition of university employ-

ers to underpay librarians the library administrator is in an unenviable position. Library personnel, however, would expect an administrator to fight to upgrade their employment conditions and salaries. Staff advancement opportunities via professional growth, promotion, and salary increases are necessities.[21] As Maurice P. Marchant states, "The individual librarian must be able to recognize a personal payoff available for good performance."[22]

A healthful and comfortable environment is important because this influences the contributions a person makes to an organization.[23] It is also essential to good health and job satisfaction. If a librarian has no privacy, this will affect the work product. The librarians may become irritable and show signs of burnout. Creativity will plummet. Sick leave may increase. Improper lighting, inadequate support personnel, and crowded working conditions may all have an adverse affect on performance. Architecturally it may not be feasible to provide personal offices for each librarian; however, if offices are available, the limit for sharing space should be two people to an office. In common work areas, an effort should be made to give an appearance of privacy. Privacy is important psychologically and is a vital element for efficient, creative academic librarianship.

The qualities that librarians expect in a position are not unreasonable. The qualities the librarian would expect from an administrator revolve around three separate areas—direction, security, and environment. In the realm of direction, a librarian should expect leadership, clear administrative lines, and flexibility. In the area of security the librarian should expect stability, a proper job description, support from administration, and a professional salary. From the environment of the position the librarian should expect responsibility, meaning, prestige, growth opportunities, support services, and a healthful working condition. Having these factors available makes it possible for a librarian to do a better job. In the 1980s, with the profession groping to meet the requirements being placed upon it by administrators, the employee is justified in asking that same administration to provide an environment conducive to meeting organizational demands. Good management is a team effort: the administrator needs competent, creative employees and the employees need competent leaders who provide direction, security, and an environment that promotes achievement.

"The qualities the librarian would expect from an administrator revolve around three separate areas—direction, security, and environment."

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What Professional Librarians Expect from Administrators: Another Librarian's View

Deborah Fink

This article is a nonadministrator's response to Cheryl A. Price's contribution. Effective administration is described in terms of leadership, clarity, and the actualization of values. The thirteen factors presented by Price are analyzed from that perspective.

Like most nonadministrators, I am certain that if I were managing, I would do things differently, which is to say better. However, I must hypothesize that the perspective gained when one ascends to the heights of administration makes it clear to the manager, though obfuscated to others, why certain choices are made. Being asked to respond to the Price article has provided me the opportunity to articulate my perceptions, unaffected by direct experience or exhaustive research, of what constitutes effective leadership.

Before reading the article, I brainstormed to release my own thoughts about what an effective administrator is. Upon reading the article I discovered that we are essentially in agreement. We differ primarily in emphasis and in the details of implementation. I will proceed, then, by setting forth my own view and analyzing Price's thirteen factors from that perspective.

Library administration is a specialization—just as bibliographic instruction, serials cataloging, and rare books are areas of specialization—that practitioners must keep up with and advance in. The effective administrator is conversant in an array of managerial theories and styles but synthesizes an individual approach and continuously develops and refines that approach, consciously selecting and applying the particular technique that seems most useful in a situation.

Because people and organizations are complex and multidimensional, an eclectic approach to management is the most viable. Managers do well, therefore, to draw not only from management theory but also from psychology, sociology, communication, anthropology, political science, women's studies, the human potential movement, learning theory, and problem-solving skills, remaining open to potentially useful techniques wherever they may be discovered.

Ideally, the administrator will discern the most effective managerial structure for each direct line manager and develop relationships that vary but are individually conducive to unique needs and styles. The process is organic, for the administrator grows, changes, and evolves while drawing upon new information and experience. Effective administrators will actively engage in continuous analysis and self-evaluation. Individuals who are receptive and willing to experiment and take risks will create a dynamic process.

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Key attributes an administrator must develop are leadership, clarity and actualization of values. The primary function of administration is leadership, which includes setting direction, fostering positive attitudes, and making choices. Organizational purpose and direction are typically mapped out in mission statements and goals as well as in an organizational chart.

To be effective the overall mission and goals would emerge from and provide structure to more specific unit goals and objectives. The relationship parallels the way a well-wrought thesis statement and outline reflect each other. Administrators have the perspective from which to look for congruence of institutional and departmental goals and objectives. A careful orchestration of the goal-setting process will also provide for the integration of individual and institutional needs.

Most individuals in service occupations seek personal satisfaction through commitment to social values. While a mission and goals are fairly standard and may be taken for granted on the day-to-day level, such operating guidelines are most valid when they emanate from a clear, evolving vision. Administrators have the opportunity to express the role of the library in the ideal, noting its relationship to, and potential to serve, its community.

Policies and procedures must also be clearly stated and should exist to support the goals and mission. The effective administrator should be familiar with and supportive of all policies, but the development and maintenance of work flow and procedures will be delegated to line managers. The effective administrator is also cognizant of and able to walk the fine line between providing general direction and allowing autonomy.

Another function of administration is to foster positive attitudes toward the library both internally and externally. Administrators will spend considerable time outside the library promoting, lobbying, and generating support, both fiscal and attitudinal. Political savvy must be honed.

Equally important is time spent inside the library. An open-door policy will not demonstrate receptivity as convincingly as an "open encounter" approach, in which the manager engages with personnel where they live—in offices and at service points. Only from such a firsthand, experiential practice can an administrator know the working reality of the organization. The attitude perceived, however, must not be one of intrusion or judgment but of shared interest and concern.

". . . the open encounter will balance the administrator's concern with the big picture—the institution, the mission, the budget—with a focus on employees as the people who bring the mission to life with their actions on the job."

The open encounter is also valuable because as one moves higher in the organization and the perspective widens, it is critical to retain the ability to focus on and relate to the details that recede. In addition, the open encounter will balance the administrator's concern with the big picture—the institution, the mission, the budget—with a focus on employees as the people who bring the mission to life with their actions on the job. The administrator can then return to the outside world with the capacity to *feel* and thereby better articulate needs.

From such forays into the front lines the administrator will be able to determine both the public image and the self-image of the library, which is an indication of employee morale. Organizational morale is the manager's responsibility. The ultimate measure of leadership is a sense of shared purpose and team effort. In fact, this discussion points to the creation of high morale and positive self-image because a library's positive self-image will translate into the public's positive experience.

A sense of team effort is engendered in subordinates in part through participation in decision making. Where choices are made over a period of time, standard procedures for equipment requests and budget or personnel allocations can offer

opportunities to express needs. Such opportunities will provide maximum benefit when the final decision-making process is explained, however. Managers must decide when it will be worthwhile to extend the decision-making process and to whom, but it is more satisfying to participate when the entire process is revealed.

The second attribute of effective administration is clarity. Not only should all forms of communication be characterized by this, but a variety of communication channels needs be established and maintained. Communication flow requires channels for both downward and upward movement. Effective administrators will provide direction and information, as well as solicit information, both factual and affective. The sense of team effort is further engendered when personnel feel informed. Certainly in a profession that specializes in acquiring and providing information, these functions should be a personnel priority as well.

Two areas where clarity is especially critical are in setting job responsibilities and standards and in providing feedback. Job descriptions should be provided during hiring and reviewed regularly as a part of the evaluation process. Standards for job performance must be set forth along with criteria for assessment. Just as important as a routine, standardized evaluation process are continuous, constructive feedback, acknowledgment, and recognition. The combination of formal and informal responses can be used to create an atmosphere of open evaluation in the spirit of working together to best accomplish individual and mutual goals. Recognition and appreciation are imperative for high morale.

The third attribute of effective leadership is the actualization of values, especially fairness, excellence, and service. The ideal leader is above all a model. Effective administrators must be clear about their values and act in accordance. Two areas where fairness can be demonstrated are in salaries and affirmative action.

As members of a female-dominated profession, librarians have comparatively depressed salaries. This situation should not be compounded by internal salary inequities, especially gender-based discrepancies. ARL salary surveys indicate that female librarians are paid less than male librarians, who hold managerial positions in numbers that exceed their percentage in the profession. Administrators must monitor internal salary equity, provide discrimination restitution where problems are evident, and actively seek to hire and promote both women and minorities.

Effective administrators will also make a commitment to excellence. Excellence is not easily described, but it embraces high standards, definition and achievement of results, and the ongoing adjustment of priorities.

Professional development is integral to developing these qualities. Because effective administrators are dynamically engaged in their own professional development, they should actively encourage and provide for the professional development of their personnel on a variety of levels.

Library functions are typically designated as "services"—technical services, public services, instructional services. Administration will succeed most when approached as an internal support service providing maintenance (budget, staffing, equipment), overall environment (both physical and affective), and positive support (constructive criticism, encouragement, and recognition). The service attitude is manifested in a desire to make it possible for, or to empower, personnel to do their best by providing direction, context, and support.

Any thoughtful person who has focused attention on management or leadership can enumerate qualities considered most essential for effectiveness. What Price attempts is a translation of such qualities into tangible factors shaping working conditions. The factors themselves are clearly desirable, if not essential. However, many of the arguments posed for each factor are flawed in their development.

Price describes a stable environment as one in which role ambiguity and work-related stress are minimized. She relates role clarity to job satisfaction but does not discuss stress. The need for clarity surpasses clearly defined responsibilities and permeates all aspects of administration, as

discussed above. Price fails to be clear herself about how an administrator achieves clarity of communication, other than through consistent behavior, although the two do not necessarily equate.

Her later discussion of clear administrative lines dissolves into a confusing discussion of management style, including the need for upward communication. One of the leadership functions of an administrator is the establishment of an organizational structure, but Price has not made a clear connection between structure and style. She notes later that an administrator should seek input from librarians for decision sharing but does not mention the need for downward communication.

Feeling informed about what is going on and why goes a long way toward creating a feeling of stability. Established, routine channels of communication, such as regular newsletters, meetings, and encounters, are mechanisms that can enhance stability through information and participation.

Price maintains that an administrator "has the obligation to . . . match qualified people with appropriate positions," and she equates this with meaning in the position. Matching people and positions should be accomplished through hiring, including written job descriptions and forthrightness in discussing expectations. The administrator must insist that an appropriate search process be maintained through library procedures as well as through institutional support.

"Meaning in the job transcends matched skills and duties. . . ."

Meaning in the job transcends matched skills and duties, however. Appropriate and challenging responsibilities, delineated in a clear job description, should be combined with the flexibility described by Price. Meaning is also derived from an environment that maximizes congruence between personal and organizational values.

Although I agree that opportunities for professional growth and creative development are essential, I question whether it is realistic to expect that when a "professional has interests in areas where he or she does not have skills, it may behoove the administrator to provide an opportunity for that growth." Rather, I place professional and peripheral development in the broader context of excellence as an overall value. Every employee should be empowered to achieve personal excellence as they are stimulated to achieve organizational excellence.

Price claims that "fear is the worst element that can be unleashed in an organization," and that "an administrator must inspire trust." She then advocates participative management but does not explain how that particular style will alleviate fear or engender trust. Rather, she moves directly to a discussion of where participative management is *not* appropriate. Participative management is a preferred approach in many contexts, but, as I maintain, the effective administrator will avoid identifying with a single style in order to dynamically develop and draw upon an array of approaches.

Leadership is included in Price's list of thirteen factors, but she argues for this quality only in the context of where participative management leaves off. Leadership is a complex, subtle, and pervasive administrative attribute. It must be manifested within and without the library in the fulfillment of responsibilities ranging from developing mission statements to modeling values.

Price is clear about the dangers of autocracy and the value of the feeling of prestige that involvement can create. Once again, however, she provides only passing reference to one of her thirteen factors—supervisory support. In my own analysis, I defined *administration* as a support service. Providing such a service is no less than actualizing the service ethic upon which our profession is based.

I agree with Price that administrators should "fight to upgrade . . . employment conditions and salaries," making claims for comparable worth where appropriate. The external administrative function is to generate both fiscal and atti-

tudinal support for the library. While administrators may face overwhelming obstacles in this regard, autonomy and flexibility can usually be exercised with the internal distribution of salary monies and promotional opportunities. In this regard the manager will actualize the value of fairness.

Administrators may again be faced with overwhelming obstacles in their attempt to provide a healthful environment. At the very least, managers can identify problem areas and make whatever adjustments are possible without major cost or remodeling commitments. Assessment procedures by staff or outside consultants can facilitate this process.

Price's thirteen qualities are useful for assessing administrative effectiveness. The attributes I identified are similar, though organized and prioritized differently. We are in complete agreement, however, that "good management is a team effort." No doubt, administrators give just as much thought to what *they* expect from librarians in order to create an effective team.

What Professional Librarians Expect from Administrators: An Administrator's Response

Brian Alley

In this article the author suggests that in addition to a recognized need for excellence on the part of library administrators, the librarians in the organization have an equal responsibility for excellence in their support of the library and its mission. Numerous opportunities exist for improving the lot of administrators and librarians through changes in library organization that allow for greater participation in the management process on the part of librarians, with increased opportunities to build trust and understanding.

Overall, I tend to agree with the author's suggestion that administrators should possess sufficient understanding, skill, and resources to provide the kinds of qualities discussed in the article. Nobody can argue that the list doesn't point to highly desirable attributes for any library administrator. The author suggests that the list of thirteen qualities may be a bit idealistic, and I quite agree. However, without questioning the value of these qualities I would suggest that there are a number of practical alternatives that ought to be considered, alternatives that I believe have the potential to correct some of the deficiencies existing in the traditional library organization and contributing to misunderstandings between librarians and administrators.

JOB FACTORS

The term *qualities* bothers me a bit, and since the author also suggests *job-related factors*, I prefer the latter and will shorten it to *factors*. What are the factors involved in a sound library administration? Some are provided by the administrator in the form of personality traits, skills, management style, and other components of the personal baggage we all assimilate over the years and carry with us from one position to the next. Other factors such as professional salaries, good working environment, and stability are in areas where the administrator can exert influence to varying degrees but, in doing so, must contend with a whole variety of outside forces that may have much more muscle in the influence department. The most concerned, sympathetic, and understanding administrators among us won't make much of an impact on salaries for librarians when those salaries are determined by state boards, legislative bodies, or collective bargaining. Certainly there are opportunities in each of these instances for some involvement but probably not to the point of effecting significant change. Others with more influence and control determine the framework within which the administrator must operate. Within a given library there may be a number of factors over which the administrator has little or no influence, and it is important for everyone on the staff to recognize it.

ORGANIZATION LIMITATIONS

Academic libraries have always favored the classic pyramid organization chart

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"Our expectations simply don't mesh with reality . . ."

with the director at the top. Colleges and universities follow the same plan, so why should the library be different? Unfortunately the plan doesn't work very well, simply because we tend to place too much faith in the infallibility of the person at the top. We tend to expect the ultimate in reason, logic, and fair play from our college and university presidents, and when they consistently fail in one department or another we become upset. They've let us down. Rarely do we take time out to consider the nature of the job and the multitude of burdens it places on a single human being. Many presidents recognize their own limitations and delegate whenever and wherever possible. The library administrator, like the college president, must contend with a number of unrealistic expectations. In the traditional, top-down, authoritarian, academic library organization, the chief administrator has been set up as the authority, last word, facilitator, benefactor, and provider for the whole organization. That's the role many job descriptions present. If administrators actually attempt to be all things to all people, they are bound to run into serious trouble. We frequently overestimate the ability of our administrators to perform in areas where they have little or no real influence or authority. Our expectations simply don't mesh with reality, and yet that doesn't prevent us from voicing our displeasure on such subjects as low professional salaries.

EXPECTATIONS VERSUS REALITY

Libraries are made up of people, collections of materials, budgets, and physical plants to house them. The administrator's job is to deal with all of them successfully. That's what the job description says. In reality administrators will need to respond to demands of varying degrees of intensity that will determine what percentage of their time must be allocated to each area of concern. The bigger the organization, the more time they will be required to devote to people and budget problems; ultimately, the budget will win out in the battle for the administrator's time. The administrator who spends the bulk of the day embroiled in fiscal matters is going to have to delegate the other areas of concern to able assistants. Picking the assistants and determining when and what to delegate are clearly critical factors in the ultimate success or failure of that administrator. If the assistants turn out to be inept or ineffectual at carrying out their responsibilities, the administrator gets the blame. The administrator who has selected competent assistants can claim some of the credit when their efforts turn out to be successful.

PROTECTIONIST THINKING

On looking back at the thirteen job-related factors, I find that they seem to suggest a kind of protectionist attitude. It is like asking administrators to promise to perform all of their duties in an exemplary manner while, at the same time, keeping the barbarians on the other side of the wall so that the staff can do their work in relative peace and harmony. I'm not at all sure that was the author's intent, but it does seem to me to suggest a kind of protectionist attitude that I seriously doubt anybody, administrator or librarian, would really want. No single administrator can or should even attempt to operate on that scale. That calls for far more responsibility than anyone can reasonably be expected to handle, especially when the authority to go along with the responsibility is probably going to be absent for at least 50 percent of what the administrator is expected to deliver. Up to now we haven't talked about the library as a team effort: a total commitment to serving the library clientele and furthering the mission of the institution. That approach requires the involvement of the entire staff—cooperating and sharing in the successes as well as the failures. And that brings us to some thoughts about what administrators should expect from professional librarians.

DROPPING THE OTHER SHOE

Selecting one element of an organization for special attention suggests that equal time ought to be given to turning the question around. What do administrators expect from professional librarians? I doubt that there are as many as thirteen factors that should be considered, and if there were that many, I'm not sure that most of us would agree on all of them. Certainly, job performance is a major consideration. It includes a number of other factors such as communication skills, professional skills, responsibility, career development, leadership qualities, motivation, and more. In most cases our jobs are what we make them. It is possible for a creative, motivated librarian to turn a position into an exciting, rewarding experience even when the book budget is suffering, the air conditioning is faulty, and the anticipated 8 percent salary increase turned out to be half that amount. If the administrator must be accountable for the thirteen factors outlined in the article, the librarians certainly have an equal responsibility to fulfill the list of duties and responsibilities in their position descriptions. And some of those duties and responsibilities may be just as difficult to carry out as those on the list the administrator is working with. How is a librarian expected to accomplish all these things and still be required to staff the reference desk umpteen hours a week? That's a familiar complaint, and it takes us right back to the expectations versus reality issue again.

"Getting librarians and administrators to view their respective roles realistically and work together constructively in a collegial, congenial, trusting partnership would seem to be the top priority."

This is a good time to stop and read some of the ads in a current issue of the *Chronicle of Higher Education*. Whether we advertise for an acquisitions librarian, a chief library administrator or a university president, we simply can't avoid the tendency to ask for more than most humans can reasonably be expected to deliver. We know it's true, but we do it anyway. If we need library administrators who will motivate, lead, support, and facilitate, then surely we need professional librarians who are creative, enthusiastic, dynamic, and determined performers. Getting librarians and administrators to view their respective roles realistically and work together constructively in a collegial, congenial, trusting partnership would seem to be the top priority.

A MIDDLE GROUND

Administrators need to find ways to share the administrative process in a way that will provide opportunities for librarians to get administrative experience. Call it training or career development, it involves more librarians in various aspects of the administrative process and provides them with experiences they wouldn't have gotten otherwise. These experiences ultimately result in a greater sense of appreciation and understanding of the administrative role. For example, the creation of an administrative cabinet will bring librarians into a consulting relationship with the administration that in time would provide them with a sense of having a piece of the action, having real involvement in the decision-making process. The administrator benefits from the thinking of several librarians who are actually participating in the administrative process: there is great potential for improved relationships and better understanding for all concerned. No, it doesn't mean that the organization has deteriorated into a library commune. It is merely a process for creating a more open situation in which trust, sharing, and consulting can contribute to solving some of the problems created by the top-down, organization chart pyramid, compartmentalization of tasks, and lack of contact between administrator and librarians. In this middle ground situation the need for elaborate, detailed job descriptions is diminished, and trust (hopefully, a team spirit) will emerge as mystery and misunder-

standing are removed from administration. If this sounds a little too pat and Pollyannaish, remember the alternative: librarians and administrators pointing accusing fingers at one another. If nothing else, by getting together they'll have a much better chance of keeping the barbarians on the other side of the wall.

CONCLUSION

Without doubt librarians have every right to expect a certain level of performance from their administrators. But in a traditional, authoritarian organization, how do they go about getting their concerns across without creating misunderstanding and confrontation? By the same token, administrators are equally concerned about their expectations for the performance of professional librarians. Producing lists of factors suggests, to me at least, demands for performance standards or similar means of measuring performance. Rather than see librarians confronting administrators in a no-win situation, I suggest that the traditional, authoritative library administration bend a bit, allowing more participation in the administrative process in order to build trust and understanding, while at the same time establishing a more creative, democratic, and collegial atmosphere for dealing with library issues.

Management Reviewing Literature: An Evaluation of Selected Characteristics

Sajjad ur Rehman

Selected characteristics of the reviewing literature of management are described. These include lag time, review length, the descriptive or analytical nature of the review, positive or negative evaluation, and the affiliation of the reviewer. The various treatments given to these characteristics by the reviewing media are compared. Trade journal reviews are brief, relatively current, and descriptive. Opinions are mostly favorable or neutral. Professional journal reviews are less current, give a detailed and critical treatment, and are evaluative. Signed reviews tend to be more analytical than unsigned reviews. The length of the review is significantly related to treatment and evaluation.

Book reviews serve a variety of purposes. They are an established means of informing a potential market of the appearance of new publications. The awareness function of the reviewing media is helpful to the general readership as well as to professional book selectors of libraries in their selection decisions. Another important function of reviews is to provide an intellectual forum of peer appraisal for a new publication to assess its contribution to the body of knowledge in a particular field. Recognition is accorded to a new book and its authors through this means. It is also an accepted norm of the fabric of professional life to examine the content of a new book and the expressed ideas and opinions of its author by subjecting it to a rigorous scrutiny in the book review column of a journal. Further, the very fact that a book is reviewed brings wider recognition and prestige to a monograph and its author.

Book reviews are an important selection tool in libraries. The greater the pressure for efficient use of funds, the more hard pressed a selector feels to make effective selection decisions, which in turn often rely heavily on the reviewing media. Many large libraries may be engaged in mass buying programs, but in most small and medium-sized libraries, librarians continue to select title by title. Even the large libraries often check the effectiveness of their mass buying and approval plans by noting reviews as they appear.

The number of periodicals in any discipline that contain book reviews is so large that it becomes a virtually impossible task to see them all. The reviewing journals also vary considerably in their coverage—in specific books selected, in length, in treatment (descriptive or critical), in lag time, in type of reviewer. A systematic examination of these attributes is the only way of identifying the most useful reviewing sources. A review of related literature indicates very few studies that examined

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some of the variables in reviewing journals. Some book reviews studies examined selected variables of trade reviewing journals.[1-4] These studies, however, have little usefulness for those interested in the book reviews of a specialized field or discipline. One pioneering research project in a specialized field was conducted by Ching-Chih Chen, who examined book reviewing in the professional journals of biomedical sciences. It was a comprehensive study and covered many significant variables of the biomedical book reviewing media.[5-8] Because this study is confined to the reviewing literature of a specialized field, the trade reviewing journals are automatically excluded, as they do not cover books published in specialized fields of theoretical or applied sciences.

The reviewing literature of library and information science was studied by Chen and Thomas Galvin.[9] Although the reviews of biomedical and librarianship literatures have different characteristics, several bibliometric similarities emerge from the two studies. For example, a high yield core of journals was isolated in both fields, wherein a small percentage of journals covered a large percentage of reviews. It was also confirmed that a few books were reviewed repeatedly; however, the majority of the books published in a field was reviewed minimally or not at all.

Additional attributes examined in the studies of Chen, Chen and Galvin, and others included lag time between the date of publication and review date, review length, the descriptive or critical nature of the reviews, the number of positive or negative evaluations of the reviewed monographs, and affiliations of the reviewers. Questions about the selection policies of reviewing journals, operational criteria, and methodology for soliciting reviews, and other related variables have been addressed by other studies.[10-12]

Management reviewing media have not been subjected thus far to any systematic examination for the identification of a core of high-yield journals that should be both priority purchases for libraries and necessary reading for practitioners and researchers. An examination of the pertinent variables of the management reviewing journals is considered crucial for identifying the most effective reviewing journals in the field. Ulrich's twenty-fourth edition lists 509 titles under the heading of "Management," and the sheer volume of journal publications makes it important to identify a selected core based on the criteria of most pertinent variables.

Reviewing studies cited earlier do not make any distinction between the professional or scholarly journals of a discipline and book trade journals. Book trade journals do not contain reviews of monographs in the domain of pure or applied sciences. However, the monographic literature in the fields of humanities and social sciences is commonly reviewed by both professional and book trade journals. A comparative study of the treatment of book reviews in these two types is considered of paramount interest for both the consumers of reviews and the monograph publishers.

Professional journals are defined as both those that clearly belong to the field of business management and also those that are from related academic disciplines. Book trade journals are defined as those that are commonly recognized as belonging to book trade or the field of library and information science. Those journals that do not belong to the book trade category are treated as belonging to the other category.

OBJECTIVES OF THE STUDY

The results of the first-part of this study of management reviewing literature are related to the identification of a core of high-yield journals and the degree of overlap among the reviewing journals. These results have been published elsewhere.[13] The chief purpose of this paper is to investigate the following characteristics or attributes of the reviewing literature of management: lag time (the time that elapses between the publication date of a book and the appearance of a review), the length of the reviews, whether the reviews are descriptive or analytical, the kind of evaluation given in the reviews (favorable, neutral, or unfavorable), whether they are signed or unsigned, and the affili-

ation of the reviewers. The same variables have been used by the earlier reviewing studies and constitute the fundamental criteria for measuring the effectiveness of reviews.

It is also of considerable interest to test for statistically significant relationships of the variables of review length, signed or unsigned status, and the affiliation of reviewers with the kind of treatment they receive (descriptive or analytical) and their evaluative slant (favorable, neutral, or unfavorable). These relationships have not been investigated by the earlier studies of reviewing journals. Three specific research questions are investigated in this study: (1) Is the review length significantly related to the evaluation of a review (favorable, neutral, or unfavorable)? (2) Is the review status (signed or unsigned) significantly related to its descriptive or analytical nature and its evaluative slant? (3) Is the reviewer affiliation significantly related to its descriptive or analytical nature and its evaluative slant?

A peripheral objective of the study is to compare and contrast the reviews in two types of reviewing journals on the basis of lag time, length, descriptive or analytical nature, and evaluative slant.

METHODOLOGY

Monographs published in 1981 and listed in the 658 classification of *American Book Publishing Record (ABPR)*[14] were selected for the sample. The publication date of 1981 was chosen because it seemed likely that the three-year period, 1981–84, would be sufficient time for the majority of the reviews to have appeared and to have been included in major indexing services of book reviews.

After locating 604 titles in *ABPR*, these were checked, first, through the separate book review sections of *Business Periodicals Index*[15] for 1980–81 through 1983–84 (the year 1980 was included to catch any prepublication reviews). The same titles were then checked in the 1980–83 volume of *Book Review Index*.[16] It was assumed that *BPI* and *BRI* would adequately cover the management reviewing media in both the professional journals of management and the general trade reviewing media. Of the total sample (604), 575 citations were located in 117 journals for reviews of 252 books.

All but 11 reviews were obtained, resulting in a final collection of 564 reviews from 114 journals, or 98.1% of the total (575) reviews; 18 of the 114 journals plainly belonged to the category of book trade or the field of library and information science.

The reviews were analyzed and coded for several variables, including title and date of the book, approximate number of words, descriptive or analytical nature, evaluative slant, and name and affiliation (when given) of the reviewer. Chi-square was used to test the significance of results by using proportions of the data for different categories. ANOVA was performed to test the significance of results for noncategorical data.

FINDINGS

The sample consisted of 564 book reviews, at least one each for 252, or 41.7%, of the 604 monographs listed in *ABPR* for 1981. However, no reviews were found for 352 books, or 58.2% of the original 604.

A core of 19 reviewing journals, or 16.6% of the 114, was identified. Each journal carried at least eight reviews of the books in the sample. Table 1 displays data for these journals, ranked according to their rate of productivity. Together, these 19 journals contained 363, or 64.4%, of the total 564 reviews. Also included in the table for each journal is the average reviewing lag time, the number of descriptive or critical reviews, and the number that were favorable, neutral, or unfavorable.

Lag Time

The prompt appearance of reviews is important for alerting librarians and potential readers to new publications, and accordingly, the value of reviews diminishes with time. This has been particularly true in recent decades, because publishers have issued shorter runs, with the result that books go out of print more quickly.

A book's precise date of publication was taken from the book review, or if not available, from Bowker's announcement media. Month of publication for 83 reviewed titles could not be ascertained and were

excluded from this portion of study. The number of reviews for these 83 titles was 195, which left 349 usable reviews.

The mean lag time for all 349 reviews in the sample was 7.5 months. There was a wide range, from less than 11 months (prepublication announcements) to 32 months after date of publication. Books are often reviewed before they are published if galley proofs or unfinished copies are supplied to journal editors.

Interestingly, this time lag of 7.5 months for management titles was only slightly less than the 8-month average lag in reviewing that Chen found for biomedical books.[17] This suggests that the discipline may not affect the time it takes a review to appear.

The 7 journals that usually carried reviews within 4 months of publication date were *Kirkus* (.3 months); *Personnel Management* (.5 months); *Publishers' Weekly* (1.7 months); *Library Journal* (2.1 months); *Choice* (3.8 months); *Booklist* (4.3 months); and *British Book News* (4.4 months).

Lag time for most of the trade journals in this core sample was considerably less than for the professional journals, indicating that trade journals generally do a better job of alerting. An exception was *Personnel Management*.

Descriptive and Analytical Reviews

A descriptive review was defined as one that briefly mentions the author's purpose, the book's scope and format, some general information about its contents, and sometimes a brief physical description in addition to providing the bibliographical information. There is little or no attempt at critical evaluation, or analysis, and the review is usually quite brief. Analytical or critical reviews, on the other hand, evaluate the content of the book in the context of the body of literature available and often suggest the type of readers to whom the book will chiefly appeal. It was anticipated that the professional journals' treatment of reviews would be different from that of general periodicals.[18]

Of the total 564 reviews, 225, or 39.9%, were descriptive and 339, or 60.1%, analytical. The trade journals had far more descriptive reviews than the professional journals. For example, 54 of the 59 reviews in *Library Journal* were descriptive. But in *Personnel Psychology*, 54 of the 56 reviews were analytical. Running true to form, *Choice*, *Booklist*, *Publishers Weekly* (*PW*), and *Kirkus* carried a higher percentage of descriptive reviews, 70.5%, 84.4%, 83.3%, and 68.8%, respectively. *Booklist*, of course, usually does not carry a review unless the book is recommended, and *PW* is primarily an announcement medium. Data on percentage of descriptive or analytical reviews for each of the 19 journal titles can be found in table 1.

Length of Reviews

The average length of the 564 reviews was 575 words. There was a wide range: some journals published reviews of 100–200 words, while others had extensive reviews running to several hundred or even more than 1,000 words. For example, the average length of a review in *Library Journal* was 106 words; in *Personnel Psychology*, 1,354. The average lengths of reviews in *Kirkus*, *Choice*, *Booklist*, and *British Book News* were found to be 286, 150, 133, 113, and 296 words, respectively. All 6 trade journals had shorter reviews than any of the management journals.

It seems reasonable to assume that brief but very current reviews are more useful for acquisition efforts, and that the lengthier reviews of professional journals inform scholars and professional managers in a more leisurely manner of the contribution of an author to the body of knowledge in their field. Timeliness is not as important in such a case.

Evaluative Slant of Reviews

Other studies of reviewing literature have shown that more reviews are favorable, some are neutral, and very few are negative. Covey reported that 90% of 1,777 reviews of 1,032 reference books that appeared between 1966–70 were either favorable or mixed.[19] The study of the reviewing literature of librarianship showed that 70.9% of the reviews were favorable and 10% were without any definite opinion.[20]

The results of this study resemble the results of these earlier studies quite

TABLE 1

CHARACTERISTICS OF THE CORE REVIEWING MEDIA

Title	Number of Reviews	Review Length Words, Mean	Time Lag Months, Mean	Nature of Review		Evaluation		
				Descriptive	Analytical	Unfavorable	Neutral	Favorable
Library Journal	59	106	2.1	54 (91.5%)	5 (8.5%)	5 (8.5%)	13 (22%)	41 (64.5%)
Personnel Psychology	56	1,354	7.8	2 (3.6%)	54 (96.4%)	8 (14.3%)	6 (10.7%)	42 (75%)
Choice	44	150	3.8	31 (70.5%)	13 (29.5%)	X	4 (9.1%)	40 (90.9%)
Booklist	32	113	4.3	27 (84.4%)	5 (15.6%)	X	11 (34.4%)	21 (65.6%)
Publishers Weekly	18	133	1.7	15 (83.3%)	3 (16.7%)	1 (5.6%)	12 (66.6%)	5 (27.8%)
Kirkus Reviews	16	286	.3	11 (68.8%)	5 (32.2%)	1 (6.3%)	9 (56.2%)	6 (37.5%)
Accounting Review	14	603	8.6	1 (7.1%)	13 (92.9%)	1 (7.1%)	X	13 (92.9%)
Harvard Business Review	14	309	11.9	9 (64.3%)	5 (35.7%)	1 (7.1%)	2 (14.3%)	11 (78.6%)
Personnel Administrator	14	571	6.9	X	14 (100%)	X	X	14 (100%)
Academic Management Review	11	1,261	11.5	X	11 (100%)	2 (18.2%)	2 (18.2%)	7 (63.6%)
Contemporary Psychology	11	1,064	11.7	X	11 (100%)	2 (18.2%)	2 (18.2%)	7 (63.6%)
Personnel Management	11	726	.5	1 (9.1%)	10 (90.9%)	X	4 (36.4%)	7 (63.6%)
Journal of Management Studies	10	803	10.3	2 (20%)	8 (80%)	3 (30%)	4 (40%)	3 (30%)
Wall Street Review of Books	10	1,027	7.2	3 (30%)	7 (70%)	1 (10%)	3 (30%)	6 (60%)
Business Horizons	9	1,179	13.0	1 (11.1%)	8 (88.9%)	X	1 (11.1%)	8 (88.9%)
Industrial Marketing Management	9	569	9.6	2 (22.2%)	7 (77.8%)	X	X	9 (100%)
Journal of Operations Research Society	9	482	12.7	X	9 (100%)	X	3 (33.4%)	6 (66.6%)
British Book News	8	296	4.4	5 (62.5%)	3 (37.5%)	1 (12.5%)	1 (12.5%)	6 (75%)
The Banker's Magazine	8	609	8.1	X	8 (100%)	1 (12.5%)	X	7 (87.5%)

closely. More than 91% of the reviews were either favorable or neutral, and only 8.3%, or 47 of 564 reviews, were negative. More specifically, 365, or 64.9%, of the reviews were positive; 151, or 26.8%, were neutral. Most journals in the sample showed a similar individual evaluative distribution, the largest percentage consisting of favorable reviews, followed by neutral, then negative or unfavorable. For example, among the most productive journals, *Library Journal* and *Personnel Psychology* have 8.5 and 14.3% negative, 64.5 and 75% favorable, and 22 and 10.7% neutral reviews, respectively.

Such a high rate of favorable reviews has been questioned by many, including Chen and Galvin, and they suggest that this "chorus of praise" is either due to the reviewing policies of journals or the absence of critical reviews in the field of librarianship.[21] Other studies, however, indicate that this same phenomenon has been observed in the reviewing literature of many disciplines. One explanation may be that editors exercise a rigorous screening policy and accept for review only those books they judge to be very good. There are doubtless many other criteria, including interests of the readership and peer pressure from the professional community. McLeod reported that *Library Journal* selected only 25% of the titles received annually.[22] The rationale that lies behind

these decisions would be interesting to pursue in depth.

Review Length and Evaluative Slant

The other objective of the study was to see whether or not any significant relationships existed between review length and the kind of evaluation. The research question regarding the relationship of evaluative slant to review length was considered first for the statistical test. The mean scores for length of unfavorable, neutral, and favorable reviews were 1,053, 487, and 591 words, respectively.

The statistical test of analysis of variance (ANOVA) was performed to test the significance of these differences. The results of the test are given in figure 1. The test reported an *F* value of 13.82 for 563 degrees of freedom, which is significant at the criterion of .05. An additional test of Duncan Multiple Range was performed to ascertain the applicability of significant differences within groups among the three categories. Figure 1 also contains the results of this test, which suggest that the unfavorable reviews are significantly longer than favorable or neutral ones and that favorable reviews are significantly longer than neutral ones at the criterion of .05.

Reviewers and Their Affiliation

Another objective of this study was to find out how many of the management reviews were signed and to determine the affiliations of the reviewers. It was interesting to see if either signed or unsigned reviews had distinguishing characteristics and also to note if there were relationships between affiliation of reviewers and reviews that were descriptive or analytical, on the one hand, or positive, neutral, or favorable, on the other.

Of the total 564 reviews, 373 (66% were signed; 191 (34%) unsigned. Table 2 includes the totals of signed and unsigned reviews and reviewer affiliations of the 19 reviewing journals. In *Library Journal*, 40 of the 59 reviews were signed; in *Personnel Psychology*, all were signed. The reviews in *Accounting Review, Personnel Administrator, Academic Management Review, Contemporary Psychology, Journal of Management Studies,* and the *Banker's Magazine* carried

Mean scores for review length

Neutral = 487.4
Favorable = 591.2
Unfavorable = 1053.1

ANOVA TABLE

	Sum of Squares	Degrees of Freedom	Mean Square
Between groups	.1159E+08	2	.5795E+07
Within groups	.2352E+09	561	.4193E+06
Total	.2468E+09	563	

Observed $F = 13.82 > F_{.05} = 3.00$

DUNCAN MULTIPLE RANGE TEST

Standard error of treatment mean = 27.33

Specified ranges at α.05* $R_2 = 2.77 \times 27.33 = 75.7$
$R_3 = 2.92 \times 27.33 = 79.8$

Neutral versus Favorable = $103.8 > \alpha .05 = 75.7$
Neutral versus Unfavorable = $565.7 > \alpha .05 = 79.8$
Favorable versus Unfavorable = $461.9 > \alpha .05 = 75.7$

*Based on the Duncan Multiple Range Table in D. C. Montgomery, *Design and Analysis of Experiments*, 2d ed. New York: Wiley, 1984.

FIGURE 1
ANOVA and Duncan Multiple Range Tests

TABLE 2

REVIEWERS AND THEIR AFFILIATIONS IN THE CORE REVIEWING MEDIA

Title	Number of Reviews	Signed Reviews*	Unsigned Reviews*	Affiliation Provided†	Reviewers' Affiliations‡ 1	2	3	4	5	6
Library Journal	59	40 (67.8%)	19 (32.2%)	38 (95%)	11 (28.9%)	2 (5.3%)	1 (2.6%)	24 (63.2%)	X	X
Personnel Psychology	56	56 (100%)	X	55 (98.2%)	33 (60%)	10 (18.2%)	11 (20%)	X	X	1 (1.8%)
Choice	44	X (100%)	44	X	X	X	X	X	X	X
Booklist	32	X (100%)	32	X	X	X	X	X	X	X
Publishers Weekly	18	X (100%)	18	X	X	X	X	X	X	X
Kirkus Reviews	16	X (100%)	16	X	X	X	X	X	X	X
Accounting Review	14	14 (100%)	X	14 (100%)	13 (92.9%)	1 (7.1%)	X	X	X	X
Harvard Business Review	14	2 (14.3%)	12 (85.7%)	1 (7.1%)	1 (100%)	X	X	X	X	X
Personnel Administrator	14	14 (100%)	X	14 (100%)	4 (28.6%)	8 (57.1%)	X	1 (7.1%)	X	1 (7.1%)
Academic Management Review	11	11 (100%)	X	11 (100%)	10 (90.9%)	X	X	X	X	1 (9.1%)
Contemporary Psychology	11	11 (100%)	X	7 (63.6%)	7 (100%)	X	X	X	X	X
Personnel Management	11	10 (90.9%)	1 (9.1%)	9 (90%)	1 (11.1%)	7 (77.8%)	1 (11.1%)	X	X	X
Journal of Management Studies	10	10 (100%)	X	9 (90%)	9 (100%)	X	X	X	X	X
Wall Street Review of Books	10	6 (60%)	4 (40%)	5 (83.3%)	5 (100%)	X	X	X	X	X
Business Horizons	9	8 (88.9%)	1 (11.1%)	8 (100%)	7 (87.5%)	1 (12.5%)	X	X	X	X
Industrial Marketing Management	9	9 (100%)	X	6 (66.7%)	4 (66.7%)	2 (33.3%)	X	X	X	X
Journal of Operations Research Society	9	7 (77.8%)	2 (22.2%)	0 (0%)	X	X	X	X	X	X
British Book News	8	6 (75%)	2 (25%)	1 (16.7%)	X	1 (100%)	X	X	X	X
The Banker's Magazine	8	8 (100%)	X	7 (87.5%)	3 (42.9%)	3 (42.9%)	X	X	X	1 (14.2%)

*Percentages of the total number of reviews in a journal.

†Percentages of the total number of signed reviews.

‡Percentages of the total number of reviews for which affiliations were given. The descriptions of six categories of reviewer affiliations are 1—teaching faculty/officials of research centers in universities; 2—executives in organizations; 3—consultants/industrial psychologists; 4—librarians; 5—free-lance writers; and 6—affiliates of research agencies.

signed reviews in most cases. *Choice*, *Booklist*, and *Kirkus Reviews*, on the other hand, had all the unsigned reviews. This is an interesting distinguishing characteristic between trade and professional management journals. Of the signed reviews, 293 (78.8%) gave the affiliation of the reviewers.

This second group was then divided into six categories of affiliations: (1) teaching faculty, (2) corporate executives or staff members, (3) librarians, (4) consultants and industrial psychologists, (5) affiliates of research agencies, and (6) free-lance writers. Table 3 lists these groups, and the numbers and percentages of reviews each produced. The largest group of reviewers consisted of 178 (69.8% of the total) faculty members or research fellows in the universities. The next largest group, 56, or 19%, comprised executives or staff officers in corporations.

To investigate the second and third research questions, a proportional test of chi-square was suitable for the categorical data of this study. First, signed versus unsigned reviews were compared for their proportions of descriptive and analytical reviews. Figure 2 displays chi-square data used in this test. The criterion value of .05 was used for these tests. The raw chi-square value of the test was 160.9 with 1 degree of freedom, which was significant at .05 level, suggesting that the signed reviews were more likely to be analytical than the unsigned.

The same test was then performed to find out if there were significant relationships between evaluative slant and review status (signed and unsigned). Figure 3 shows the results of this test—raw chi-square value of 30.41 with 2 degrees of freedom, which is again significant at .05 level. This indicates that significantly fewer unsigned reviews were unfavorable. The proportion of neutral reviews was higher among unsigned reviews. The test also showed that in this case significantly more signed than unsigned reviews were favorable. This result implies that withholding a reviewer's identity may not be an effective strategy if the purpose is to

TABLE 3

REVIEWER AFFILIATIONS

Category of Affiliation	Frequency	Percentage
Teaching faculty/affiliates of research centers in universities	178	60.8
Executives/staff members in enterprises	56	19.1
Librarians	28	9.6
Consultants/industrial psychologists	20	6.8
Affiliates of research agencies	6	2.0
Free-lance writers	5	1.7

	DESCRIPTIVE	ANALYTICAL	ROW TOTALS
Signed	79 (21.2%)	294 (78.8%)	373 (66.1%)
Unsigned	146 (76.4%)	45 (23.6%)	191 (33.9%)
Column totals	225 (39.9%)	339 (60.1%)	564 (100%)

$$\chi^2 = 160.0 > {}^{\alpha}.05 \times {}^{df}1 = 3.84$$

FIGURE 2

Chi-square Test for Signed versus Unsigned Reviews toward Descriptive or Analytical Nature of Reviews

	UNFAVORABLE	NEUTRAL	FAVORABLE	ROW TOTALS
Signed	43 (11.6%)	77 (20.6%)	253 (67.8%)	373 (66.1%)
Unsigned	4 (2.1%)	74 (38.7%)	113 (59.2%)	191 (33.9%)
Column totals	47 (8.3%)	151 (26.8%)	366 (64.9%)	564 (100%)

$\chi^2 = 30.41 > {}^{\alpha}.05 \times {}^{df}2 = 5.99$

FIGURE 3
Chi-square Test for Signed versus Unsigned Reviews toward Evaluation Slant of Unfavorable, Neutral, and Favorable Reviews

allow more freedom to write a critical or negative review.

The same test was used to see if the affiliation of the reviewer was significantly related to the treatment (descriptive or analytical) given to the review. However, the number of observations for three categories—consultants, affiliates of research agencies, and free-lance writers—was too small to meet one of the chi-square test assumptions and had to be combined. Figure 4 shows the results of this test. The chi-square value was 41.17 with 3 degrees of freedom, which is significant at the criterion of .05. In other words, significant differences did occur in the types of reviews, among different categories of reviewers. The proportions for different categories of reviews indicated a consistent pattern except in the "librarians" category. Other categories had proportions of analytical reviews in the range of 85.7%–90.3%, while the same proportion was only 25% for librarians. It could be reasonably assumed that the significance of differences in the chi-square test was attributable to one category of librarians. This assumption was tested by excluding librarians from the chi-square matrix in another test. The results (chi-square value of 1.69 for 2 degrees of freedom) confirmed that no significant differences occurred among the three categories. Thus the only significance might be re-

	DESCRIPTIVE	ANALYTICAL	ROW TOTALS
Teaching faculty	22 (12.4%)	156 (87.6%)	178 (60.8%)
Executive/staff officers	8 (14.3%)	48 (85.7%)	56 (19.1%)
Librarians	21 (75%)	7 (25%)	28 (9.6%)
Consultants/free-lance writers/research agencies' affiliates	3 (9.7%)	28 (90.3%)	31 (10.6%)
Column totals	54 (18.4%)	239 (81.6%)	293 (100%)

$\chi^2 = 41.17 > {}^{\alpha}.05 \times {}^{df}3 = 11.07$

FIGURE 4
Chi-square Test for Reviewer Affiliations toward Descriptive versus Analytical Nature of Reviews

lated to the category of librarians whose reviews were predominantly descriptive.

When the categorical data for reviewer affiliations were placed in a matrix of unfavorable, neutral, and favorable reviews, as shown in figure 5, the chi-square was 17.5 with 10 degrees of freedom. The observed level of significance was .063, greater than the criterion, .05, meaning that there were no significant differences. Thus no significant relationship was proved between affiliation of reviewer and favorable or unfavorable reviews.

CONCLUSIONS

The sample of book trade and professional journals used in this study had contrasting characteristics that seem to reflect their efforts to satisfy the different needs of their clientele. Reviews in the trade journals are relatively current, brief, descriptive, and without information about the reviewers. They usually did not provide any in-depth content analysis nor did they include critical comments on the substance and treatment of the monographs. Most of the opinions were neutral or favorable.

However, a typical review in a professional journal was published at a later date, provided a detailed analysis, and was more likely to be critical and evaluative in its treatment.

It was also found that signed reviews were more often analytical than unsigned. It was an additional finding that unsigned reviews had a significantly higher proportion of favorable evaluations. However, a probable explanation is that most of the unsigned reviews appeared in trade journals, many of which function as alerting as well as evaluative sources.

Results of this investigation also suggest that trade and professional management journals have characteristic reviewing patterns that meet the differing needs of, first, selectors and, second, scholars or practitioners.

Additional studies could be done to see if the profile established for management journal reviews (signed, longer, and more analytical than trade journals) holds true for other disciplines as well. Who reads the reviews in the professional journals and how they use the information would be another interesting topic. To what ex-

	UNFAVORABLE	NEUTRAL	FAVORABLE	ROW TOTALS
Teaching faculty	20 (11.2%)	33 (18.5%)	125 (70.2%)	178 (60.8%)
Executives/ staff officers	3 (5.4%)	9 (16.1%)	44 (78.6%)	56 (19.1%)
Consultants industrial psychologists	7 (35.0%)	2 (10%)	11 (55%)	20 (6.8%)
Librarians	3 (10.7%)	4 (14.3%)	21 (75%)	28 (9.6%)
Free-lance writers	1 (20%)	2 (40%)	2 (40%)	5 (1.7%)
Research agencies' affiliates	0 (0%)	2 (33.3%)	4 (66.7%)	6 (2%)
Column totals	34 (11.6%)	52 (17.7%)	207 (70.6%)	293 (100%)

$\chi^2 = 17.5 < {}^{\alpha}.05 \times {}^{df}10 = 18.31$

FIGURE 5
Chi-square Test for Reviewer Affiliations toward Evaluative Slant of Unfavorable, Neutral, and Favorable Reviews

tent are readers' needs actually met? More investigations of the screening policies of journal editors in different disciplines would add significantly to our knowledge in this area, as would studies of publishers in a field. Which ones succeed in having the greatest number of their books reviewed? Much important information on reviews and reviewing awaits interested, eager investigators.

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Bibliographic Instruction: Planning for the Electronic Information Environment

Harold B. Shill

Movement toward an increasingly distributed, electronic information environment places new demands on library instruction programs. Thus, bibliographic instruction should figure prominently in the strategic planning efforts of academic libraries so that it will continue to provide knowledge and skills for lifelong learning in a changing setting. In addition to anticipating new technologies, instructional planning should reflect projected changes in the following: student population, curricula, academic-industrial relationships, scholarly communication, information industry, governmental information activities, schools, public and special libraries, home, work, and income. Ongoing environmental scanning will permit the modification of instructional goals, as necessary, to meet the challenges ahead.

Academic research has been enriched in recent years by the use of insights, findings, and models crossing traditional disciplinary boundaries. Similarly, new perspectives on the electronic information environment can be acquired outside the literature of librarianship. Several examples from higher-education literature, airline in-flight magazines, and professional conferences will serve to underscore the differences between librarian and nonlibrarian perceptions of the fast-changing information environment.

In a recent *Change* article, "Educating for the Information Society," a prominent academic dean observed,

> People who do not educate themselves—and keep educating themselves—to participate in the new knowledge environment will be the peasants of the information society.[1]

Nowhere in Harlan Cleveland's thoughtful discussion of problem solving with computer and telecommunications technologies, however, is the word *library* mentioned. The only reference to libraries is a photograph of a crouching student searching the bottom drawer of a card catalog. This scene offers a vivid contrast to others of enthusiastic, stimulated students using computers.

Cleveland's article, like many others on the social impact of new technologies, is not so much "antilibrary" as "alibrary." The crucial skill for lifelong learning in a fast-changing information environment, he suggests, is "integrative thinking," which he defines as "the capacity to syn-

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thesize, for the solution of real-world problems, the analytical methods and insights of conventional academic disciplines."[2] Computers, in his view, permit cross-disciplinary analyses of complex phenomena that were impossible with print media.[3] Though few librarians would quarrel with Cleveland's emphasis on "integrative thinking," his neglect of information-retrieval methodology is a major omission.

Airline magazine articles reach a busy, affluent, mobile audience of corporate, governmental, and educational decision makers, leaders who have little time for in-depth reading on any topic. Though seldom cited in scholarly publications, such articles are excellent examples of informative "trend pieces" that bypass the organizational and professional communication channels normally used by these individuals. Given the breadth and power of the audience they reach, such articles have a great potential for shaping elite perceptions and opinions, including views of the emerging electronic information environment.

" 'Why make that trip to the little corner library,' wondered Shea, 'when you can tap into an infinitely vaster store of information from your home?' "

A good example of this genre is a 1984 article, "The Information Explosion," by free-lance writer George Shea. "Why make that trip to the little corner library," wondered Shea, "when you can tap into an infinitely vaster store of information from your home?"[4] As evidence, he examined in depth the potential uses of home computers for accessing large data banks.[5] Shea identified CompuServe, Source, and Dow-Jones Information Retrieval Service as the "big three" online purveyors, then noted that Dialog, Mead Data Central, SDC/Orbit, BRS, and the BRS/After Dark service were "worth looking into" for "encyclopedic" access to bibliographic data.[6] He also encouraged consumer access from personal computers to Information on Demand customized research, videotex, and electronic mail, bulletin boards, and shopping services and suggested using computer conferences rather than professional journals for access to the latest research developments.

In a similar in-flight magazine article, William Kutik favorably contrasted online searching with manual searching of printed bibliographic tools:

> many people have had occasion in high school or college to use the *Reader's Guide to Periodical Literature* or the *New York Times Index* for magazine or newspaper research about a subject too current to be in an encyclopedia. That experience usually included tedious searching . . . followed by the frustration of making a list of the references, locating the appropriate magazines or microfilm reels . . . laboriously finding the articles, and finally taking notes. . . . The whole process—including getting the full text of the articles—can now be performed automatically with on-line databases, which can hold the equivalent of a traditional, large library.[7]

Though he exaggerates the holdings of online files, particularly full-text databases, Kutik advises potential end-users that electronic searching can be costly:

> On any service, you're liable to run up a big bill very quickly. It's important to read all the service handbooks, plan your search before signing on, then swiftly get on and off.[8]

Otherwise, like Cleveland and Shea, he fails to address either the intricacies of Boolean searching or the social implications of electronic information systems. Predictably, no mention is made of intermediary searching or search-strategy consultation with librarians or other, disinterested third parties. Yet many influential citizens are forming their initial impressions of the electronic information environment from precisely such articles.

Access to information in a more complex environment is a frequent topic at professional conferences as well. Daily showings of the film *Goodbye, Gutenberg*, based on Anthony Smith's influential book about videotex,[9] were featured at the 1983 American Association for Higher Education (AAHE) annual conference, a meet-

ing structured around the theme "Computers and Telecommunications." Only one session on library roles in the electronic environment was on the conference program.

Finally, at the 1985 Research Libraries Group (RLG) conference, the director of Stanford's data resources group noted that "users are connected to many different sources, of which the library is only one."[10] Observing that "computers are rivaling books as information-storage and dissemination devices," he further warned, "Libraries might disappear through disuse—through a shift of scholarly research away from libraries toward other places and other media."[11]

Though drawn from widely differing sources, these observations on computer-based information systems contain important implications for the academic library's instructional mission. First, the information environment is changing rapidly and *independently* from the adaptive efforts of libraries. It is increasingly clear that in an era of electronic media and distributed access, the library will not be the primary information resource for many technologically literate individuals.

Second, as a result, libraries of all types face crucial decisions about their role in the new environment. Whether libraries anticipate change and adapt to it or emphasize traditional services through traditional formats, the electronic environment will have a profound impact upon their function as information sources within academic institutions.

Third, the instructional mission of the academic library must be reassessed as we advance into the electronic environment. Librarians must decide whether they will provide bibliographic instruction as traditionally defined or a broader set of skills and knowledge relevant for lifelong self-education in an increasingly electronic environment. The selection of the latter approach will require that they present a compelling case for the expansion of human, material, and financial resources to academic administrators in the near future.

This article has a twofold purpose. First, it is intended to convey the importance of strategic thinking and planning for developing bibliographic instruction programs that will provide information-retrieval skills relevant to future work and personal needs. Second, it is designed to demonstrate to administrators the importance of including patron instruction programs in libraries' long-range planning activities.

To pursue these aims, the article examines current library responses to technological innovations, scans environmental factors influencing the instructional mission, and discusses ways of increasing the relevance of instructional efforts for future information environments. Emphasis is placed on the total information environment, rather than on current applications such as online catalogs and database searching. Findings from the environmental scan are presented in order to suggest general directions for an expanded instructional effort, issues to be addressed by instruction librarians, and a planning perspective for electronic information instruction.

"Using learning theories and additional knowledge from education, psychology, and other disciplines, instruction librarians have developed sophisticated user-education programs."

BIBLIOGRAPHIC INSTRUCTION AND ELECTRONIC TECHNOLOGIES

Bibliographic instruction has emerged to enjoy widespread, though not universal, acceptance in academic libraries in the last twenty years. Using learning theories and additional knowledge from education, psychology, and other disciplines, instruction librarians have developed sophisticated user-education programs. Advancing beyond an earlier emphasis on library orientation and individual research tools, these new approaches focus on concepts such as information structure and research strategy and use innovative learning approaches such as guided de-

sign.[12] Course-related and course-integrated instruction has displaced the library tour as the preferred form of presentation. Most instructional programs, however, still focus on the use of research tools *in the library*, whether in print or in machine-readable format.

Efforts to incorporate electronic media into instructional programs have focused on three areas: online catalogs, online databases, and computer-assisted instruction. Academic libraries have also become, in some cases, repositories for microcomputers supporting educational activities not conventionally viewed as part of the library's mission.[13] A significant literature has emerged in the last six years to document these applications.

Instruction librarians have sought to make use of online public access catalogs (OPACs) as easy as possible through formal instruction, reference encounters, and use aids. Northwestern University has been particularly innovative in planning for patron use of the online catalog, articulating specific learning objectives and systematically monitoring patron searching behavior.[14] Most OPAC users will need specialized training to take advantage of all the capabilities of an online catalog and to succeed in their searches.[15]

Online database searching has been integrated into many bibliographic instruction programs through lecture/demonstrations and direct end-user training. While intermediary searching is still the predominant delivery mode for this form of online activity, many academic libraries now provide public access microcomputers with user-friendly software.[16] Others train faculty members and graduate students to perform searches from their homes or offices and may advise patrons on software selection.[17] Whether performed by end-users or intermediaries, online searches have become an increasingly accepted part of the research process. What has not been extensively recognized, however, is the great contrast between interactive, online searching and the conventional research process. Rather than merely compiling a bibliography, end-users are able to explore new leads and generate new ideas from citation printouts.[18] This capability is highly conducive to the "integrative thinking" advocated by Cleveland.

Computer-assisted instruction (CAI) has been used in libraries to train both patrons[19] and employees,[20] to cover both particular subject resources and general library orientation. Good CAI can provide consistent, high-quality, interactive instruction at any time of the day, night, or weekend. At the University of Delaware, for example, all freshmen complete PLATO instruction modules on the card catalog, periodical indexes, newspapers, and the university library system. This allows librarians to focus their efforts on assisting advanced undergraduate and graduate students in specific disciplines and on developing enhanced CAI modules.[21]

A fourth, more controversial response to campus computerization has been the provision of library space and personnel for computer-related instructional activities. At Texas A&M a large microcomputer lab, staffed by library personnel, has been built within the library.[22] At the University of Wisconsin–Parkside, librarians teach students spreadsheet, word processing, and file management applications.[23] At West Virginia University, librarians have been active in university planning for computer-based education.[24] This approach has been defended as a way for the library to demonstrate its continued relevance in the electronic environment.[25] Some, however, criticize in-library microcomputer labs as an unwise diversion from the library's primary responsibilities.[26]

Academic libraries have made significant investments in these four areas, yet there are other electronic technologies for which delivery and instructional commitments have been narrowly focused, minimal, or nonexistent. These include access to consumer utilities, nonbibliographic databases marketed directly to professional end-users, statistical databases, electronic publishing, optical disks, and electronic document delivery. Although a few libraries provide access to the major consumer utilities such as The Source, CompuServe, and the Dow-Jones Infor-

mation Service,[27] these utilities, for the most part, focus their promotional efforts on end-users in the home or office. They have subscriber lists that exceed 500,000, yet formal and systematic instruction in the use of their services by librarians is virtually nonexistent.

Specialized database providers also target the end-user. AGNET, for example, provides daily weather, commodity prices, livestock production, and other current information to farmers throughout the country. The EdNET system, through home computers, offers more than forty home-study courses, including testing and direct interaction with instructors. The National Materials Property Data Network (NMPDN) has begun to provide engineers with direct access to numeric data on "the mechanical and other properties of materials."[28] In all these cases the focus of the marketing effort is the end-user rather than potential intermediaries.

Access to numeric databases on campus has usually been provided by a nonlibrary unit such as the University of North Carolina's Institute for Survey Research. These organizations maintain magnetic tapes, codebooks and manuals; search and manipulate data files; and instruct end-users in searching and processing aggregate data. Although there is growing awareness among librarians of the need to access numeric data files,[29] such as those maintained by the Inter-University Consortium for Political and Social Research (IUCPSR), the National Opinion Research Center (NORC), and pollster Lou Harris,[29] actual searches of statistical/numeric files have been conducted primarily in databases provided by such familiar online services as Dialog and BRS. A recent survey of fifty-five ARL libraries found that in-library searching of numeric databases was done almost exclusively by librarians, not by users.[30] In addition numeric files receive little mention in online service publicity.[31]

In the library literature, electronic publishing has largely been viewed as posing problems, e.g., of cataloging and access, rather than opportunities.[32] The implications of electronic publishing for technologically sophisticated end-users have received minimal attention, except in the writing of futurists.[33] Instruction librarians appear to be making little effort to provide basic end-user orientation and training in searching full-text databases and electronic bulletin boards and knowledge databases such as New Jersey Institute of Technology's Electronic Information Exchange System (EIES).

"The professional end-user is clearly the chief marketing target of companies developing CD-ROM and CD-I products."

Nor does the literature contain adequate discussion of patron training for searching databases stored on optical disks. This vacuum should be filled: the professional end-user is clearly the ultimate marketing target of companies developing CD-ROM and CD-I products.[34] Proponents of optical disk technology argue that the predictability of its cost, because there are no telephone and database connection charges, should stimulate searching activity. The National Agricultural Library's current experimental distribution of the Agricola database, on laser disk, to land-grant libraries may provide evidence of CD-ROM's long-term viability.[35] Whether participating libraries opt for intermediary or end-user access to optical disk databases, this technology clearly has potential for widespread use in a variety of settings.

Finally, electronic document ordering and delivery systems such as UMI's Article Clearinghouse and Artifax services and ISI's Genuine Article tear-sheet service have been perceived by librarians primarily as an enhancement of document delivery *through the library*. It is not, however, predetermined that libraries will remain the sole point of access to these services. Advanced workstations such as the UMI prototype and Rosenberg's self-contained scholar's workstation will have the capacity to download data, text, and citations from remote online databases, access local area networks (LANs), search

databases stored on optical disk, and receive telefacsimile transmissions from distant sites.[36] Commercial vendors will aggressively pursue the end-user market once such workstations are fairly common. Some document delivery services, including Information on Demand and the Report Store, already focus their marketing efforts on the information consumer rather than on the library. Indexing services and professional societies such as the Public Affairs Information Service (PAIS) and the American Mathematical Association have also entered the document delivery business. Instruction librarians, however, generally emphasize the library's ability to secure in a few weeks documents that are not available locally.

PLANNING FOR THE NEW TECHNOLOGIES

Notwithstanding their positive responses in some areas, e.g., online catalog design and CAI, academic librarians' instructional stance toward new technologies has, on the whole, been reactive rather than anticipatory. Instructional implications are generally addressed after a new technology has been selected, rather than before. Seldom are efforts made to integrate new technologies into a larger conception of instructional plans and priorities. This reactive posture is reflective of a tendency to plan according to the annual-report cycle and to project past experiences into the future, rather than looking beyond to long-term, strategic planning for bibliographic instruction and other services. The argument often heard is that change is so rapid and unpredictable that planning more than two to three years ahead is futile.

Undoubtedly, predictions become increasingly fuzzy as we project further into the future. A refusal to plan for the long haul, however, both dooms libraries to a permanently reactive posture and enhances vendors' ability to manipulate the information environment. Providers of information technologies perform extensive market research before investing heavily in a new product and work actively to *create* a market for their products. Accordingly, major database vendors now demonstrate their products to potential customers at major disciplinary (Modern Language Association, American Psychological Association) and professional (American Medical Association, American Association for the Advancement of Science) conferences. Marketing staff present both intermediary and end-user searching options to these audiences. Prospective customers, however, could still come away with an overoptimistic impression of their immediate searching potential and would benefit from library guidance regarding system capabilities and shortcomings. Popular articles, including those in airline magazines, promote such a sanguine perspective. Instruction librarians have a responsibility to educate members of the academic community in both the opportunities and pitfalls of new information technologies.

There are many models for strategic planning, but library literature on the subject is sparse.[37] Little long-term, across-the-board consideration of instructional choices can be found in the library planning, automation, or bibliographic instruction literatures. The focus of most future-oriented articles is on teaching the use of individual access systems, such as online catalogs or personal computers, rather than on systematic treatment of evolving information-access needs in an increasingly electronic, distributed-use environment. Two notable exceptions are the Tennessee and Texas A&M studies of information needs and user services in the electronic environment.[38]

Strategic planning models vary in content, but all normally include a definition of organizational mission, a statement of goals, and a list of objectives. A planning exercise will help to move the organization from its current situation to a "desired future" by identifying opportunities, competition, environmental trends, and clientele needs and then devising strategies for reaching objectives and moving toward long-range goals.

Environmental scanning, which should be a key component of every strategic plan, can be described as the monitoring of the environment outside the immediate organization for new developments that

"External, nontechnological developments must be addressed if instruction for future information needs is to be adequate."

present threats or opportunities. A taxonomy is usually employed to structure the scanning process. At the University of Minnesota, for example, institutional scanning efforts are divided into political, economic, social/life-style, technological, and demographic/manpower areas.[39] Participants in each area meet regularly to review and modify the plan in response to internal and external developments. In the academic environment the scanning function is usually performed by an office of institutional research. The most prominent strategic planning examples in the library community are the efforts of ALA, ACRL, and the Public Library Association.

SOCIAL CHANGE, NEW TECHNOLOGIES, AND THE INFORMATION ENVIRONMENT

It is widely recognized that evolving information technologies will have a profound effect upon academic libraries in the next ten to fifteen years. However, less attention has been given to other social, economic, institutional, and political forces in forecasting the future of academic libraries in the electronic information environment. It is a central argument of this article that external, nontechnological developments must be addressed if instruction for future information needs is to be adequate. In order to illustrate the potential impact of external variables, a rudimentary environmental scan has been performed. The implications of this scan are considered at the end of this section, and appropriate instructional responses to the scan are suggested in the conclusion.

For present purposes, an academic library is conducting the scan. Ten environmental factors pertinent to the library's instructional mission will be examined in this section—population, home, schools, work and income, governmental support, information industry, public libraries, higher education, scholarly communication, and new information technologies. The scan illustrates the range of external factors that may affect library instruction. It is not exhaustive, so such low-probability, high-impact factors as thermonuclear war, desertification, depletion of Earth's ozone layer, and rapid melting of the polar ice cap have been omitted. The selected factors have a real, if not an obvious, impact upon the information environment. Technology is treated as one among many environmental influences in order to emphasize the importance of the other social forces, often neglected in the library literature, in determining the shape of the coming information environment.

Factor 1: Population

In *Academic Strategy,* George Keller projected a 25 percent decline in the traditional college-age population between 1979 and 1994.[40] The magnitude of this decline will vary from state to state, but it will be greatest in the Northeast and Midwest. Rhode Island will experience the largest drop, projected to be 49 percent.[41] Growth in this age group, as in the general population, will be greatest in the Sun Belt states ranging from Virginia to California.

More recently, John Budd and David Robinson used National Center for Educational Statistics data to predict that higher education enrollment would decline 5.4 percent between 1984 and 1993. They anticipated the greatest change at the undergraduate level, where a 7 percent decline would follow an increase of 42 percent in the 1970s. Slight increases were projected in the over-twenty-five, part-time, first graduate degree, and professional categories.[42]

The United States is also experiencing a significant change in the ethnic and racial composition of its population, with new immigrants coming primarily from Third World countries, while existing Hispanic, black, and Asian groups are growing faster than the Caucasian population. With 4.3 million legal immigrants and 7

million illegal aliens entering the country in the 1970s, colleges will be accommodating a more heterogeneous group of students with diverse cultural, linguistic, and social backgrounds.[43]

The implications of these demographic trends have not been lost on academic administrators, who have escalated their recruitment campaigns. These efforts have been successful, and total enrollment has stabilized at approximately twelve million students.[44] Though some institutions have lowered admission standards, enrollment stabilization has been achieved primarily through student recruitment outside the traditional college-age population and concentrated efforts at student retention. Assumptions about age-group homogeneity will become less valid as a more culturally diverse student body enters college.

Factor 2: Home Environment

Domestic life has changed profoundly in the past twenty-five years. Most notable is the sharp increase in single-parent families and in families in which both parents work outside the home. Day-care centers have brought structure to the lives of many children, but the long-term effect of contemporary child-rearing practices upon the social and educational development of children is still an unresolved question in educational research.[45] It is anticipated that an increasing percentage of freshmen will be former latchkey children and children from single-parent homes.

The invasion of the home by visual entertainment media is likewise a major development in childhood socialization. Researchers have consistently found that children today read less and watch television more than did their counterparts twenty years ago, and a specialized journal (*Television and Families*) has been devoted to this subject. The rapid penetration of home and school environments by the videocassette recorder (VCR) in recent years will reinforce this preference for passive, visual entertainment.

A third revolution in the home environment is the presence of the microcomputer. As of January 1986, 19 percent of all American homes had a microcomputer, and an increasing number had acquired a modem.[46] However, computing resources are distributed inequitably. Although television commercials have exaggerated the impact, there will probably be a widening technological literacy gap between students who have home computers and those who do not. The potential for a significant gender gap also exists, because 93 percent of current home-computer users are male.[47]

Factor 3: Schools and Learning

During the past twenty years, elementary and secondary schools have experienced steady decline in the quality of instruction due to low teacher pay and prestige, retirement or resignation of many excellent teachers, higher-paying careers opening for women and increased discipline problems. One result of deteriorating school performance has been an increase, to twenty-seven million, in the number of illiterate adults in the United States. This is a social problem with grave long-term implications in a country where basic literacy, not to mention technological competence, will be a sine qua non for effective participation in the information society.

"Growing societal dissatisfaction with the schools' direction crystallized in 1983 with the publication of *A Nation at Risk*."

Growing societal dissatisfaction with the schools' direction crystallized in 1983 with the publication of *A Nation at Risk*, the report of the National Commission on Excellence in Education. Five "new basics" were emphasized in this blue-ribbon panel's report including instruction in computer science enabling high school graduates to

(a) understand the computer as an information, computation and communication device; (b) use the computer in the study of the other basics and for personal and work-related pur-

poses; and (c) understand the world of computers, electronics and related technologies.[48]

In fact, the schools had already anticipated the need for computer competencies, and the number of schools with at least one microcomputer had increased from 18.2 percent in 1981 to 92.2 percent in 1985.[49] Thus, academic institutions will experience a corresponding rise in the computer competencies of entering freshmen in the next few years.

Frequently, school libraries are becoming repositories for microcomputer laboratories, and many have acquired online catalog and/or circulation systems. Many school libraries have also introduced online database searching. This activity has increased geometrically since librarian intermediary searching was introduced in Montgomery County, Maryland, in 1976.[50] The first reported end-user training for high school students occurred at Radnor High School (Pennsylvania) in 1980.[51] As of April 1987, nearly 1,600 educational institutions, approximately half of them high schools, had enrolled in Dialog's classroom instruction program. That total represents an increase of 700 participants since January 1986.[52] BRS and Wilsonline also have active classroom programs for instructional access in schools.[53] Students graduating from schools with online catalogs and database services will have higher expectations for information technologies than many of their classmates.

Factor 4: Work and Income

In the best-selling book *Megatrends*, John Naisbitt observes that we are moving from an industrial society to a knowledge-based, information society.[54] For workers in many basic industries, this shift has meant that high-paying jobs lost to automation and foreign competition have been replaced by lower-paying service jobs, including some in cottage industries. The physical barriers between work and home have also become blurred with the rise of telecommuting.

On the other hand, and paradoxically, a trend toward a shorter work week offers more time for leisure activities. While the average employee may have more time to engage in personal information seeking, he or she will have fewer resources to pay for fee-based services. These services, in turn, are expected to proliferate and in many cases will replace print products.

Factor 5: Information and Government

The future role of government in information dissemination remains uncertain. It is clear, however, that the Reagan administration has created a political agenda that emphasizes shrinking the federal government and shifting many governmental activities to the states or the private sector. The American Library Association has repeatedly opposed administration initiatives to eliminate funding for major library programs; reduce government publication activities (OMB Circular A-130); "privatize" government information; create a "sensitive but unclassified" category for some federal documents; end revenue sharing and the deductibility of state and local taxes (a prime financial support for local education); limit data collection and access; contract out federal libraries to private firms; and discourage development of a national information policy. Although the long-term impact of the Reagan "revolution" upon the information environment remains to be seen, it is likely that the federal government will be less active in this area as efforts to meet Gramm-Rudman-Hollings' deficit reduction targets continue and the administration's antigovernment bias lingers.

The impact of reduction in federal support for education and libraries will vary by state. In low-income, low-tax base states such as West Virginia, where federal revenue sharing dollars have accounted for 22 percent of local contributions to public library funding, the effect will be profound. One West Virginia county has lost public library service altogether, while others have closed temporarily, as limited funds are dedicated to police and fire protection and other "basic" services.[55] Unless alternative sources of funding are developed, students from poorer states will become increasingly disadvantaged in exposure to both traditional library resources and new information technologies. Other states, such as Minnesota, have saturated their schools

with computers, while Tennessee has pioneered in the use of teacher merit pay to upgrade the quality of elementary and secondary education.

The support of education and libraries by local government will vary according to local tax bases, community income, voter support for bond issues, and local elite preferences. Although many school libraries have benefited from Education Consolidation and Improvement Act (ECIA) Chapter 2 funds, direction of these federal monies to library/media centers has been very uneven since block grants replaced thirty-one categorical grant programs in 1982. ECIA will need to be reauthorized by Congress in 1987, and the amount of funds reaching school libraries will depend on the disbursement provisions set by Congress.[56] Intrastate differences in preparing students for the information society will continue to grow as students from affluent, education-oriented districts receive the best precollege training in information retrieval skills.

Factor 6: Information Industry Structure

The most significant trend in the information industry, in addition to the development of consumer-oriented information services, such as The Source and CompuServe, has been its inexorable movement toward economic concentration. For example, Canada's International Thomson Organization has acquired Carrollton Press (producer of the REMARC database), Gale Research Company, and Utlas, giving it a firm foothold in the production of machine-readable bibliographic records, reference materials, and online library systems. Aggressive private publishers, such as Elsevier and Pergamon, are taking over society publications, university presses, and database vendors such as SDC while actively denouncing federal information programs as "unfair competition." Conventional publishing houses such as McGraw-Hill and Macmillan have developed electronic publishing divisions that produce computer software in addition to books and journals. Bell and Howell, a major producer of microform readers, has taken over University Microfilms, a major producer of microform products, which in turn, has acquired Data Courier, an important vendor of business and pharmaceutical databases. Reed Publishing, which has advocated privatization of the National Technical Information Service, has purchased Cahners, the new publisher of *Library Journal*.

These trends toward both horizontal and vertical integration of the information industry are harbingers of reduced competition, higher prices, increasing reliance on fee-based services, and the domination of the information sector by organizations whose primary concern is profit, rather than dissemination of knowledge.

"The overarching technological question in the information industry is the long-term result of the shakeout between print and online publishing."

Factor 7: Technology and Access

The overarching technological question in the information industry is the long-term result of the shakeout between print and online publishing. Reporting on a Delphi study, F. Wilfrid Lancaster predicted in 1982 that 25 percent of all reference books would be available only in electronic form by 1990, that 50 percent of all technical reports would be accessible only in machine-readable form by 1995, that 25 percent of all journals would be published exclusively in electronic form by 2000, and that fully 50 percent of all abstracting/indexing services would be unavailable in print by 2000.[57] He also predicted that the "migration from print" would occur first in the literatures of science and technology, followed by the social sciences, the humanities, and finally, popular literature.[58] In 1985 he contended that many of his earlier projections about the "paperless" society were already being confirmed by technological developments.[59]

Other developments that will affect access to information are library automation, telecommunications advances, improvements in computer hardware, links between computer systems, "intelligent" searching software, direct document delivery, optical disk technology, desktop publishing, and electronic document databases. Given the extensive coverage of new technologies in the library, computer, and higher education literatures, and the overview purposes of this environmental scan, in-depth consideration of individual technologies is not needed here.

Factor 8: Public Libraries

The public library has long provided access to both materials and information for most adults who have completed formal education. It can be anticipated that well-funded, innovative public libraries will thrive as they meet new demands and adapt to the electronic environment. The Pike's Peak Library, which serves as an online information center for the Colorado Springs community, may be regarded as the prototype of the future.[60]

Less-affluent public libraries, on the other hand, may be forced to reduce hours, acquisitions, and services while confronting a new set of demands generated by the electronic environment.[61] Such libraries will become increasingly marginal for their technologically literate patrons, and private vendors may step in to fulfill unmet needs. As their visibility recedes, private-sector competitors emerge, federal support diminishes, and publishers challenge government's information activities, many of these public libraries may disappear.

Factor 9: Higher Education

Academic libraries must be sensitive to changes in the institutional environment and in the teaching, research, and service missions of their parent institutions. Demographic and curricular change, university-industry partnerships, the "wiring" of the campus for local area networks (LANs) and remote computer access, and possible library/computer center mergers are the most significant areas for library administrators and instruction librarians to monitor.

Keller reported that 40 percent of all college students in 1980 were enrolled part-time, while 36 percent of the student body was over the age of 25.[62] Extension and evening/weekend instruction, whether delivered on campus, by traveling faculty members, through computer-assisted instruction, or via satellite and microwave links, is likely to become increasingly important for reaching nontraditional students.

The number of international students in American institutions has increased dramatically, from 145,000 in 1970 to 321,000 in 1982. Their impact has been especially noticeable in applied disciplines such as agriculture and engineering. In 1980 foreign students accounted for 33 percent of the enrollment in these disciplines.[63] Since 1981 more than 50 percent of all U.S. doctorates in these fields were awarded to foreign students.[64] It should also be noted that the number of students from China is likely to rise. Thus, nontraditional students, whether older or of foreign origins, will comprise an increasingly large proportion of enrollment as we move toward the 1990s.

Curricular change in recent years has reflected societal perceptions of opportunity and educational need. Disciplines that provide knowledge directly relevant to postcollege employment, such as business administration, computer science, and engineering, have experienced significant growth. A shift toward cultural conservatism by students has also stimulated enrollment growth in most applied disciplines.

Federal sponsorship has long been a vital stimulus to university research.[65] Colleges have also benefited from federal support, which expanded into other disciplines and academic environments after the war. The current recession of federal involvement in higher education, however, has underscored the importance of academic relationships with private industry and business funding sources. Though Robert Rosenzweig and others have written extensively about emerging university-industry relationships in re-

cent years, only a few writers address library-business relationships.[66]

Progressive academic institutions have adopted campus computing strategies, including automation priorities and vendor purchasing guidelines. Some such as Carnegie-Mellon, Drexel, and Drew, have also mandated that incoming students acquire a specific make of microcomputer.[67] In addition to library databases, many files are already maintained by campus computer centers, research institutes, academic departments, and university administrations. The IAIMS (Integrated Academic Information Management System) concept advanced by Nina Matheson and Patricia Battin directly addresses the issue of decentralized databases in a wired campus environment.[68] Provision of campuswide access to local information systems offers many opportunities for library-computer center collaboration.

The wired campus can provide enhanced access to both local online and external databases and electronic messaging systems.[69] Computer centers already make connections to outside systems through Telenet, Tymnet, Bitnet, CompuServe, The Source and other services, as do academic departments and individual faculty members.

Factor 10: Scholarly Communication Patterns

A final environmental factor that influences the instructional mission is the evolution of scholarly communication systems in the electronic environment.

Academic libraries have traditionally provided access to the formal communication systems of academic disciplines through catalogs, abstracting and indexing services, and bibliographies. These print-based services are now complemented by a multitude of online files whose users are developing a whole set of new information-seeking behaviors.

Informal communication systems such as Price's "invisible colleges" have been largely neglected by instruction librarians, though they are well-documented in studies of scholarly communication.[70] Informal communication systems have flourished in the past through conventional channels such as letters, telephone calls, and face-to-face discussions at professional conferences. Advances in computer and telecommunications technologies will profoundly influence the future structure and importance of invisible colleges.[71] In fact, preliminary evidence of this transformation is already available.

Scholars can now submit manuscripts to publishers on flexible disks, and there is no reason to assume that telefacsimile, electronic file transfer, and other technologies will not be used similarly in the future. Electronic manuscript delivery is merely a format change at one stage of the publication process, not a radical departure from existing scholarly communication systems. However, computer conferencing, electronic publication databases, and desktop publishing will pose formidable problems for bibliographic control in traditional systems.

"Computer conferencing should greatly streamline the scholarly communication process."

Computer conferencing should greatly streamline the scholarly communication process, as both ideas and manuscript drafts can be reviewed interactively with colleagues at distant sites prior to their submission for publication. The primary drawback of this method will be the continued insulation of these communications from colleagues outside the invisible college who might offer useful suggestions on work in progress or benefit from the ideas themselves.

Electronic databases mounted by individual institutions or consortia will also permit scholars to examine research in progress.[72] If depositing finished documents permanently in such systems becomes an academically acceptable form of publication, important new databases will be created outside existing bibliographic control systems.

Desktop publications, finally, may prove to be the most elusive documents of

all, since their existence will not be known until they are incorporated into standard bibliographic sources, such as the OCLC Union Catalog. As new technologies are used more widely, information overload is likely to affect scholars and students, and quality control will be difficult to maintain, given both the capability for searching remote databases and the current completion rate of 7,000 scientific articles per day.[73]

Summary

While not necessarily exhaustive, these ten factors illustrate the breadth and importance of environmental scanning for future instructional planning efforts. Developments in these areas carry enormous implications for higher education and academic libraries and for society at large. They must be actively addressed in instruction programs if we are to prepare our students and faculty for effective lifelong functioning in the electronic information environment.

Instruction for lifelong learning must convey the fluidity of the information environment; cover key institutional sources of information, e.g., public library, private vendors, and government; and suggest strategies for maximizing retrieval while minimizing cost. Perhaps most importantly, instructional planning must take into account changes in scholarly communication and in the higher-education environment itself. As electronic and informal communication channels gain importance, it will be the librarians' task to promote these systems and teach users how to access and manipulate them.

Higher education will be transformed significantly by four factors: (1) rise in nontraditional and foreign student enrollment; (2) growing use of computer and telecommunications technologies for research, teaching, and service; (3) expansion of vocational curricula to attract an employment-conscious student body; and (4) development of academic-industrial partnerships.

Meeting the instructional needs of nontraditional students will require flexible scheduling to permit instruction during evening and weekend hours. Instructional delivery to off-campus sites requires librarians at Central Michigan University and the West Virginia College of Graduate Studies to travel extensively. Another option is the development of instructional packages for remote delivery via satellite, microwave, or computer-assisted instruction. The needs of foreign students may best be met by early contact, preferably in small groups, during campus orientation programs. Such students will be an increasing target of university recruitment efforts during the next decade, and both imagination and a certain amount of specialization will be required to meet their needs.

With the growing use of new technologies, librarians need to know the uses of these technologies and educate campus administrators and faculty on their potential. The new technologies can deliver instruction to remote sites (on and off campus), search local and distant databases, transfer files electronically, and transmit discrete bits of data or whole documents directly to the library or the end-user. It is important that key decision makers do not perceive the library as a self-contained warehouse when LAN and off-campus delivery decisions are made. Library/computer center mergers give one indication of how libraries may evolve.[74]

The shift in curricular emphasis is particularly important for diverse groups of students, such as freshman English classes, where academic major–related instruction may be more effective than literary or general fact-finding exercises. Establishing the library's relevance to personal information needs is particularly important at this stage of a student's career. If the habit of systematic online searching is not established early, it is likely that the student will rely on informal contacts or be misled by the potential of electronic database searching after graduation.

Finally, two slightly different aspects of industry/higher education relationships have significant implications for academic libraries and their instructional mission. First, because access to private funding depends heavily on the quality of a university's faculty and its research, libraries

should develop local collections to support industrial-academic research ventures and expand faculty instruction in the identification and use of appropriate access tools.

Second, publicity about library resources should be sent to both corporate and small business representatives. Library resources permitting, this effort could include publicity about fee-based information delivery programs, such as the Michigan Information Transfer Service or Carnegie-Mellon's PLAID. This type of instructional effort will solidify industry-university relationships and contribute to local, state, and regional economic development. In addition to strengthening the institution in its quest for private sector support, it will also enhance the library's position within the university or college and may stimulate private financial support for the library.

ELECTRONIC INFORMATION, PATRONS, AND THE ACADEMIC LIBRARY: TOWARD A "DESIRED FUTURE"

The advent of distributed, electronic access to information presents enormous opportunities and significant risks for the information consumer as well as the library. Among the benefits are greater access for some (the technologically literate and affluent), the ability to exert greater control over one's own searching,[75] computer-age receptivity to innovative uses of technology, and the chance to expand searching skills over time as computer-based systems are used regularly.

The risks of the electronic environment may be less apparent to patrons, though librarians should be acutely sensitive to them. These risks include (1) erosion of the formal communication system and its supporting bibliographic apparatus, with increasing reliance on informal, electronic communications; (2) emergence of significant gaps in the information structure of various disciplines; and (3) user ignorance of relevant databases, the content of such databases, and the shortcomings of their search strategies. Artificial intelligence and generalized "front ends" may alleviate some of the technical problems of end-user searching, but instruction librarians have an ongoing responsibility to educate their patrons in the deficiencies, as well as the capabilities, of the new information technologies.

"Instruction librarians should also be aware of the long-term social consequences of Lancaster's 'migration from print on paper.' "

Instruction librarians should also be aware of the long-term social consequences of Lancaster's "migration from print on paper."[76] While some types of information will certainly remain available in print, others will be produced in electronic form only from the outset and still others will be available in both formats (parallel publishing) during a transitional period. Electronic information services will normally be fee-based. Librarians should obtain search subsidies, instruct patrons in cost minimization, and teach them to use print alternatives.

Patrons should be made aware of the potential for gaps in long-maintained data files and the existence of alternative sources for data that have been collected but not published. Data gaps will become an increasingly significant instructional concern as academic libraries provide access to machine-readable files.

A third potential development is the substitution of computerized file browsing for conventional reading or scanning of books and journals by affluent and technologically sophisticated information users. Concern has been expressed that by relying on electronic database searches, students may miss the enriching educational experience of browsing through bibliographies, footnotes, printed indexes, and library stacks.[77] However, as Joseph Raben has noted, online files provide the opportunity for a broader and more focused form of browsing:

> In the existence of online encyclopedias, for example, lies a possibility for encouraging students to follow individual lines of inquiry, not

only within subjects but across them. Such students, truly browsing and selecting information that links with already required knowledge, may not be only educating themselves in particular subjects, but also learning the most important skill—how to acquire knowledge.[78]

Studies are needed to determine the effectiveness of selective online browsing and SDI services versus conventional scanning or reading, but we can anticipate that new, more powerful types of online browsing will refine and enhance the experience of "learning the literature." The process may change, but the idea-generating potential of online searching is far greater than that of print indexes without any real sacrifice of the potential for serendipitous discovery.

Studies of actual use of all types of electronic information systems are also needed. Knowledge of how users interact with online systems will enable us to identify areas where instructional refinement is needed and learn alternative search methods from patrons' coping strategies. Findings from such studies should be incorporated into instructional methods for online information consumers. Feedback from use studies should also be given to system designers.

In defining the appropriate library response for the transition to the electronic information era, we must first ask the fundamental question, What is our business? Naisbitt cites the railroad industry, which belatedly recognized that it is in the transportation (not railroad) business, as a prime example of institutional failure to adjust its mission statement as new transportation technologies evolved.[79] In their book *In Search of Excellence,* Peters and Waterman advise businesses to "stick to the knitting," to focus on activities they know best rather than diversifying beyond their span of knowledge and competency.[80] A good definition of academic libraries' business would incorporate both sets of advice.

It is tempting, in an era when computer use is increasing rapidly and is at least tacitly linked to organizational relevance in popular understanding, to seize every opportunity to acquire and use microcomputers in support of higher education activities. Appealing as these opportunities may be for pursuing institutional goals and altering traditional perceptions of the library, they ultimately divert human and material resources from the library's central mission. The mission can be defined quite simply as *the provision of intellectual and physical access to information and knowledge.* Instructing users to access information, both inside and outside the library and regardless of format, is a goal whose achievement is central to the library's continuing mission. Instruction in microcomputer use, however, is analagous to instruction in writing and reading skills, two tasks libraries have properly avoided despite their obvious relevance to the use of printed materials. With the pervasive excitement over computer and telecommunications technologies, however, we may forget that new technologies are merely instruments for attaining that larger goal and not ends in themselves. If we are to provide relevant instruction for the electronic age, we must retain that distinction and not make long-term commitments to roles peripheral to the library's mission, such as microcomputer instruction.

In addition to focusing clearly on the library's mission, goals and objectives, instruction librarians must also develop regular channels of communication with school, public, and special librarians. The recent Carnegie Commission report, *College: The Undergraduate Experience in America,* has emphasized the transition from high school to college as a major "discontinuity" adversely affecting undergraduate education.[81] The report also directly addresses the library's instructional role:

> All undergraduates should be introduced carefully to the full range of resources for learning on a campus. They should be given bibliographic instruction and be encouraged to spend at least as much time in the library—using its wide range of resources—as they spend in class.[82]

Contact with school librarians is essential for knowing the information retrieval background of incoming freshman. As secondary schools rapidly add database searching services, provide extensive exposure to microcomputers, and acquire automated catalog and circulation sys-

tems, the information retrieval sophistication of incoming freshmen will be changing significantly from one year to the next. Similarly, school librarians should be aware of the information environment awaiting their college-bound students so that appropriate preparatory training can be given. However, we must also be prepared to address the needs of students from "have-not" districts and to maintain a dialogue with their librarians as well.

"Communication with public librarians is vital in preparing students for postcollege information retrieval and in understanding the post–high school information background of many returning, nontraditional students."

Communication with public librarians is vital in preparing students for postcollege information retrieval and in understanding the post–high school information background of many returning, nontraditional students. Whether they eventually settle into an affluent, progressive community like Colorado Springs or a poorer town with an underfunded public library (or none at all!), our students will need to be aware of the public library as a vital, evolving alternative to fee-based services marketed directly to the end-user. Knowledge of public library services is also essential for comprehending the post–high school information experiences of nontraditional students, whether or not they have actually used public libraries. Nontraditional students are also likely to appreciate the information potential of the public library, having experienced real-life information dilemmas.

Familiarity with trends in special libraries is likewise imperative, since many students going into a corporate, governmental, or legal environment will have access to their unique (and often proprietary) resources. Appreciation of change in the information environment, the services provided by special libraries, and the value and ease of access to information for decision making will be particularly useful for both traditional and nontraditional students anticipating careers in these areas.

The other nontraditional cohort, the international group, presents a more difficult long-term planning problem. In addition to having language and cultural difficulties, foreign students come from national information environments ranging from very advanced to primitive. Because most international students in the United States come from Third World countries that represent an increasingly important institutional market, it is appropriate that instruction librarians acquire at least a general knowledge of library services in the less-developed countries (LDCs). This knowledge may be acquired through courses in comparative librarianship, programs at library conferences, or through individual study. While familiarity with 130+ national library systems is clearly not a realistic expectation, some knowledge of general patterns in Third World library systems, including present and future access to major database and document delivery services, is imperative if we intend to prepare foreign students as well as their American peers for lifelong learning.

Implicit in this discussion of communication with nonacademic libraries is the assumption that environmental factors must be scanned not as discrete, isolated phenomenon, but as elements of a larger, holistic information environment. Just as it is essential that our response to change include linkages with other types of libraries, it is also vital that we appreciate the complex interrelationships among social, political, and economic changes in the information environment. Too often we assume that technology is the sole driving force behind developments in the information sector. By ignoring other environmental influences, however, we can neither anticipate and understand changes in the information environment nor give our students a truly adequate conceptual preparation.

Viewed from this perspective, an effec-

tive, evolving instruction program is an essential objective for achieving the strategic goal of user training appropriate for the information age. Such a program should ideally be progressive and cumulative. It should build on prior experience and initial instruction for local information systems eventually to impart: (1) an understanding of formal and informal communication systems; (2) familiarity with the tools and strategies needed to access those systems; and (3) awareness of the inevitability of change and its likely direction as new technologies emerge and social, political, and economic conditions evolve. The learning outcome should be a thorough grounding in information organization/retrieval concepts and print/online searching skills appropriate for lifelong learning in varied work and living environments during an era of constant, rapid change.

If such a program is to be developed, it is essential that instructional objectives be incorporated explicity into the long-range planning process of the library. Specific information competencies, such as the Colorado Library Association's "information literacy" goals, should be adopted as program targets.[83] Administrative support, both human and material, must be increased if instructional aims are to be achieved. Program performance should be reviewed regularly through post-testing and long-term feedback. Learning objectives should be modified as information technologies and institutional curricula change. The adoption of an activity name more reflective of the new environment, such as "information instruction," could direct academic librarians toward a new set of objectives.

The form and scope of the library's planning for information instruction will significantly affect its future role on the wired campus as well. At best, it can become a thriving communication node, responding to changing information needs and anticipating new social and technological developments. The Pike's Peak Library and the IAIMS concept can be regarded as trailblazing efforts in that direction. At worst, the library may become a print repository, abdicating responsibility for providing and teaching access to machine-readable files and other online, "non-library" information to departmental data libraries, consumer utilities, and campus computer centers. These organizations are the library's natural competitors in the electronic environment, our frequent and desirable collaboration notwithstanding. If a passive stance is adopted, the traditional library will sink slowly into the post-Gutenberg obscurity predicted by Lancaster.[84]

By adopting "information literacy" as one of its strategic goals, the library will encourage a significant redefinition of its role on campus. First, it will enhance campus perceptions of the library as a permanent, indispensable resource whose mission is to provide access to *information* and *knowledge* in any format. Second, by focusing upon lifelong information competencies as an instructional goal, the library will demonstrate a clear capacity for useful adaptation to environmental change. Third and most important, the library will gain visibility on campus by proving its effectiveness in providing access to information and may, as a result, command a larger share of institutional resources.

If librarians do not apply their bibliographic and instructional skills to training for electronic era information retrieval, their institutions and patrons will suffer. As Bob Dylan observed in a somewhat different context, "He who gets hurt will be he who has stalled."[85] The first step toward effective instruction for the electronic environment is to recognize information literacy as a central goal in the long-range planning process. A clear statement of instruction objectives for a "desired future," one far broader than development of course-related and course-integrated instruction, must also be formulated. Our students are preparing for a future in which change will be constant and often unsettling. It is our responsibility, as academic librarians, to provide them with the conceptual framework and skill base they will need to exploit the information environment and thus avoid becoming its "peasants."

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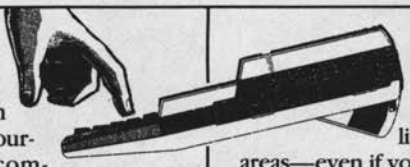

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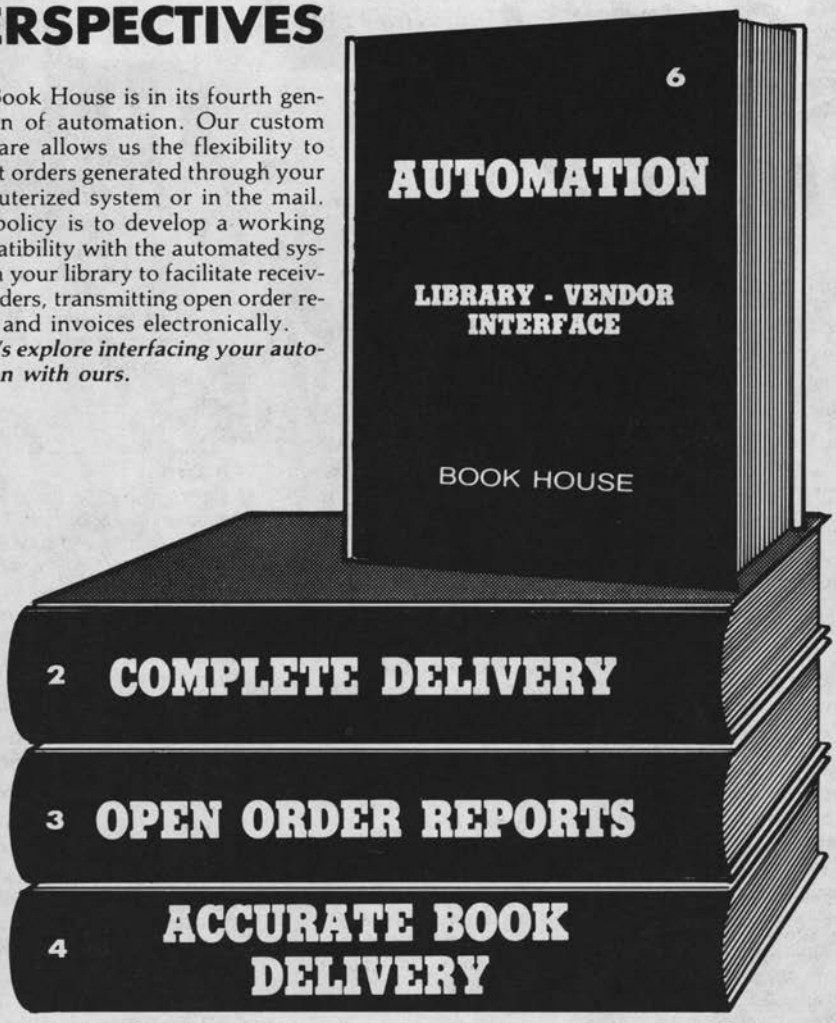

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Letters

To the Editor:

It is very gratifying to note that John Rutledge and Luke Swindler (*C&RL*, March '87, "The Selection Decision") have successfully grappled with the vexed question of how to make that all-too-important selection decision and emerge from the experience relatively unscathed. Just about all the angles of the selection process appear to have been covered in the authors' effort to arrive at a "practical and holistic model for microselection." It is freely (and frequently) acknowledged throughout the article that the selection of materials will always contain a "subjective element," since "it is an art—not an exact science."

It is admitted, too, that the proposed selection model could be flexible, accommodating the divergent needs of libraries and their clienteles. Book reviews that selectors routinely rely on could perhaps be fitted in intellectual content or bibliographic considerations. The treatment that the topic receives in a publication, or how well the book is written, may be subsumed under the rubric of intellectual content.

About the only aspect that the article does not encompass, for understandable reasons, is the impact of online databases on the whole question of collection development. The authors were talking only about the selection decision and not the global aspects of collection development, but it might still be helpful to note that the rules of selection of library materials have changed to an appreciable extent in the context of this ubiquitous phenomenon. This is particularly significant for special libraries, some of which go so far as to eliminate all but the most essential hard copy materials. In the field of law, for example, one could say that there is no need for any of the state or regional reporters if the library subscribes to Lexis or Westlaw.

It may therefore be observed, however tangentially, that the rules of the collection development game are constantly changing, thanks to the advances in information technology. The next question perhaps is: Will collection development as we know it become obsolete, like original cataloging?

MADUGULA I. SASTRI
John Marshall Law School Library, Chicago, IL 60604

To the Editor:

Eugene Sheehy's article "Selected Reference Books of 1985–86" (*College & Research Libraries*, January 1987) includes a review of *Walford's Guide to Current British Periodicals in the Humanities and Social Sciences.*

The review states that this title is available from the Library Association, London, at £38 or U.S. $50. In fact, the book is distributed exclusively in the United States by ALA Publishing Services with a list price of $55.00. The ALA order code for this book is 0-8389-L676-2.

RUTH ANN JONES
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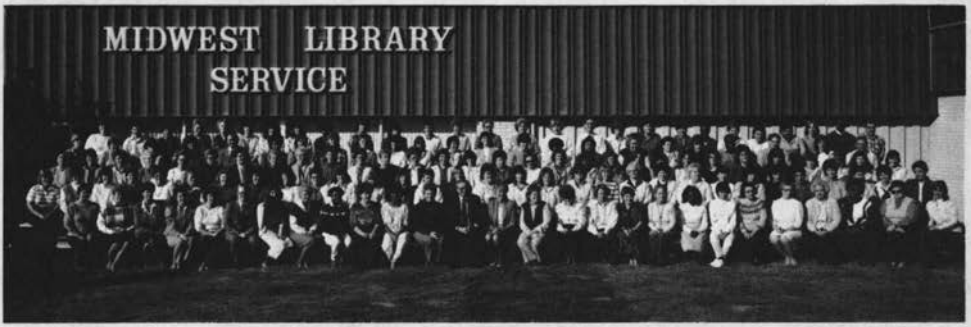

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Recent Publications

BOOK REVIEWS

ALA World Encyclopedia of Library and Information Services. 2d ed. Ed. by Robert Wedgeworth and others. Chicago: American Library Assn., 1986. 895p. $165 (ISBN 0-8389-0427-0). LC 86-10894.

To a large extent, the second edition of the *ALA World Encyclopedia of Library and Information Services* follows a format that resembles the original, 1980 version. In addition to an "Outline of Contents" consisting of five major sections, it contains hundreds of essays ranging in length from a few hundred words to more than 25,000 words. Arranged alphabetically by subject, the articles, many of which include pertinent tables and photographs, cover a vast array of topics—for example, education, abstracting and indexing, professional organizations, and philosophy of librarianship. Without a doubt, the heaviest concentration of subject matter occurs in the area of biography: there are entries on more than 200 people who have contributed substantially to the profession of librarianship. Another substantial portion consists of essays on the status of libraries in more than 150 countries.

There are some major differences between the two editions as well. Aside from the increase in the number of pages from 601 to 895, the most conspicuous is the replacement of the parallel index with a more traditional subject index. This is definitely a change for the better because it allows for much quicker and more thorough access to the text. The "Outline of Contents" also has been modified. Although both editions use the same five main divisions in classifying material, there are changes within these sections in the second edition. For example, a few subjects have been deleted while others have been transferred from one section to another. Some topics have been condensed to the point where they no longer exist in their original form, as in the case of "State Library Agencies in the United States." Other sections have been expanded, particularly in the area of biographical articles. Except for section 3, "Theory and Practice of Librarianship," there is little change in the structural format of the remaining four major divisions covering "The Library in Society," "The Library as an Institution," "Education and Research," and "International Library, Information, and Bibliographic Organizations." The "Outline of Contents" remains one of the most valuable parts of the *ALA Encyclopedia* and, in conjunction with the new indexing approach, provides even better access to the articles in the volume. It can further serve as a teaching aid; and the modifications in the second edition enhance its usefulness in the instructional area.

On the whole, the essays are well written and accurately reflect the subject matter in a concise manner. According to the editor, approximately 85 percent of those in the original edition have been revised, representing the combined efforts of 411 contributors and 31 advisers from all over the world. Nevertheless, an unevenness in quality exists in some of the essays, particularly where a lengthy article is subdivided among various authors. For example, nine individuals prepared the extended work on "Archives." Most of its sections are informative and well done, but a few fail to include references to the

most important of recent secondary sources for their subject areas. In one instance, no new information at all was added in the second edition while in another, mention of relatively recent studies that analyze trends was omitted.

Even more importantly, a few subjects receive very little attention. The U.S. Government Depository Program serves as a good example. Although this subject may or may not warrant a separate essay, it certainly deserves more attention than what its effect has been on "Law Libraries" (p.443). It is ignored in otherwise fine pieces, "National Libraries—Deposit Laws" and the protracted essay on libraries in the United States. Perhaps this oversight can be attributed to the new indexing format in the *Encyclopedia,* which supposedly is to be used in conjunction with other sources (p.v) such as the *ALA Yearbook of Library and Information Services.* This annual quite appropriately focuses on current issues of the U.S. Government Depository Program; it does not provide a synopsis of its origins and major historical developments. For users who require an overview on the dissemination of government publications in the U.S., the *ALA Yearbooks* are a poor substitute for an informative article in a single source.

Like the text, the new subject index also suffers from a certain level of incompleteness. Although it is much better than the parallel index, it does not contain any reference to some individuals and organizations discussed in the articles. For example, no reference is made to William Caxton (p.224) nor to the Instituto Columbiano de Cultura, either under its full title or under its acronym COLCULTURA (p.213). The index, as one of the fundamental access points, definitely needs to be expanded in later editions.

The second edition of the *ALA World Encyclopedia of Library and Information Services* constitutes a major undertaking for which the editors, advisers, and contributors are to be complimented. Taken in its totality, this volume is useful and has reference value. Any weaknesses in this second edition are comparatively few in number; it

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definitely marks a major improvement over the original version.—*James W. Geary, Kent State University, Ohio.*

Information Technology and Information Use: Towards a Unified View of Information and Information Technology. Ed. by Peter Ingwersen, Leif Kajberg, and Annelise Mark Pejtersen. London: Taylor Graham, 1986. 194p. $37 (ISBN 0-947568-06-9).

This volume comprises thirteen papers presented at a seminar entitled "Information Technology as a Tool for Information Use" at the Royal School of Librarianship, Copenhagen, in May 1985. The seminar was international in scope and produced papers on diverse topics, but, as a collection of such, this volume fails to present the unified view of information science theory or practice that is suggested by the subtitle. In fact, there are several conflicting viewpoints presented in the various papers.

Well-known authors in information science, such as F. W. Lancaster and Blaise Cronin, have contributed to this collection. The papers are organized under three themes: (1) "Socio-Economic Aspects and Policy-Making"; (2) "Information Systems Design: Pragmatic Issues"; and (3) "Education for Information." Lancaster has contributed an excellent introduction in which he raises several important questions concerning the present state of information technology and accessibility to information. He expresses his doubt that subject specialists have any better access to the relevant literature in their fields than they had before the advent of computerized information systems. He also predicts a vital role for the information gatekeepers of the future. Both of these viewpoints are contradicted by other authors.

Common themes addressed in this volume are the difficulty of measuring qualitative and quantitative contributions of information and information technology in organizations, the debate concerning generalization versus specialization in library and information science education, and the question of whether there will be greater or lesser future roles for librarians

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and information intermediaries in light of advances in information technology. Business, industrial, and educational settings are discussed.

The papers presented under the topic "Education for Information" will be of greatest interest to an academic readership. Both optimistic and rather critical viewpoints are expressed concerning the present state of educational programs. Leif Kajberg discusses the restructured library and information science curriculum at the Royal School of Librarianship and concludes that the past program was inadequate for successful preparation of students for future information professions. He bemoans the liberal arts background of the majority of students: they lack quantitative skills, and a high proportion of them are "reading-oriented, introvert and handicapped in some way or other." Cronin also suggests changes in existing educational structures for the education of "electronic librarians." Irene Wormell describes the current state of library and information science education as "chaotic and controversial" and stresses specialization in education for the information professions. Ann Irving discusses the U.K. Microelectronics Education Programme for primary school education and suggests that information professionals will become obsolete as future citizens become their own information managers. She raises the rather absurd question of whether children should continue to be taught to write in light of speech recognition and communications technology.

On the theme "Information Systems Design," Lancaster discusses the evaluation of information services and the difficulty of measuring cost-effectiveness in their provision. Linda C. Smith describes knowledge-based systems and artificial intelligence and defines associated terminology. Peter Bøgh Anderson presents an interesting set of metaphors to describe interaction between humans and automated systems from the point of view of computers as media. Another topic addressed in this section is human factors and their relevance to information systems design.

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The papers presented under the topic "Socio-Economic Aspects and Policy-Making" are primarily concerned with cost/benefit models for information services and quantitative contributions of information and information technology to productivity in business and industry. Inge Berg Hansen discusses the need for national information policies and the design of one such policy in Denmark.

On the whole, this volume does not provide a comprehensive overview of the field: it is a haphazard collection that presents diverse opinions on different aspects of information and information technology in the public and private sectors.—*Dana S. Edwards, University Library, University of Illinois at Chicago.*

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